Effective Elements to Improve Writing

In this issue read about:

- Reading and Writing
- Facts and Procedures
- Technology Implementation

Strategies and Books to Incorporate in the Math Classroom

Summer Institute
Lesson Development

<table>
<thead>
<tr>
<th>Components of an Effective Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
</tr>
<tr>
<td>Daily Review</td>
</tr>
<tr>
<td>Daily Objective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concept Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept Linkage In Discipline</td>
</tr>
<tr>
<td>Concept Linkage Out of Discipline</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Guided Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Practice</td>
</tr>
<tr>
<td>Independent Practice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long-term Memory Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closure</td>
</tr>
<tr>
<td>Homework Assessment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher Expectancies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Teach and Over Learn</td>
</tr>
<tr>
<td>Student/Teacher Relationships</td>
</tr>
<tr>
<td>Use Simple Examples</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Note-taking</td>
</tr>
<tr>
<td>Vocabulary is Stressed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reading and Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facts and Procedures</td>
</tr>
<tr>
<td>Technology Implementation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory Aids</td>
</tr>
<tr>
<td>Questioning Strategies</td>
</tr>
</tbody>
</table>

Highlights

- Administrative Highlights

Teacher Highlights

Secondary Math

- Looking at basic facts from second grade through calculus.

- Recommended books and scoring rubric to implement reading and writing in the secondary math classroom.

Secondary Literacy

- Eleven effective elements are provided with respective positive effect of the practice on students writing.

Secondary Science

- Breaking down the Nevada State High School Science Proficiency Exam. The schedule for exams, core questions, content strands, and respective ability levels.

Table of Contents

RPDP Teams

Elementary Literacy

Start motivating your students to act and feel like authors by modeling your personal experiences with literacy.

Administrative

There is a prodigious amount of documentation required as an administrator so start using the tools that are already available to you.

Technology

The availability of resources to incorporate technology in language arts, math, and science.

Elementary Math

Start the integration of math in the elementary classroom. From the “Greedy Triangle” to graphic organizers.

Elementary Science

The well-known K-W-L is modified to the Reading and Analyzing Notification (RAN) strategy. Start using it with your elementary science students.
Developing Authors Using Writers Workshop

One of our goals as teachers is for our students to become writers, not just be able to write a summary of a book, or write a book report, but to actually think of themselves as authors. To most people, an author seems like someone who has an exciting life with many adventures and interesting daily occurrences. Authors perceive themselves as normal people, except for the fact that they take in everything they see and experience with all of their senses. Authors think about how different events deeply affect them instead of just saying, “Oh, it snowed overnight. It is beautiful,” and going on with their day. An author would stop, open the door and smell the crisp air, caress the cold snow, study the glistening snowflakes blanketing the earth and listen to the calm silence as all the animals are huddled in their homes.

As a teacher, how do we motivate our students to begin to act and feel like authors? The book *The Art of Teaching Writing* by Lucy McCormick Calkins has wonderful strategies to use to teach our students to be authors. Calkins explains the process of introducing and implementing a Writers Workshop. A Writers Workshop begins with demonstrating for your students how writing is meaningful in your life.

**Writers Workshop consists of:**
- mini-lessons,
- writing time,
- conferencing time,
- sharing time,
- publication of books
- publication of poems
- publication of short stories etc.

There are many different ways to implement each section of the Writers Workshop, depending on the individual needs of the students. One constant, as stated by Calkins, is the environment is deliberately kept predictable and simple because the work at hand and the changing interactions around that work are so unpredictable and complex.

One of the most important roles of the teacher during the school day is to demonstrate the love of literacy. Modeling for your students how important reading and writing are in your life will help instill that importance in their lives. Modeling your personal experiences with literacy will be the most meaningful for the students because those are most meaningful to you.

Written By: Lara Hosser
RPDP Elementary Literacy

Do you enjoy writing in your free time?
Do you perceive yourself as a writer or an author?
Administrative Using Your Tools

Administrators are always looking for tools to substantiate the prodigious amount of writing and documentation that comes with the job. They need look no further than their book shelves.

The State Standards, Power Standards, CCSD Guide for Benchmarks, Curriculum Essentials Framework (CEF), Secondary Syllabi, and site generated School Improvement Plans (SIP) offer a plethora of substantive materials for conferences, observations, and community interactions. These tools are well written by state and district representatives and are evolved through a lengthy process which includes data supported actions and feedback from the major stakeholders.

Today these tools provide relevant information regarding all aspects of student achievement and include district and state goals. Using these documents which have been written to align all the elements surrounding improving student learning creates an educational environment of consistency and understanding. Utilizing these tools as part of the evaluation process offers an opportunity for focused actions for both administrators and teachers.

Measurable Goals
The CCSD curriculum documents contain specific measurable goals for teachers which are aligned with the state standards and are included in most School Improvement Plans. Each course, as outlined in the Secondary Syllabi and each grade level document in the CEF, includes suggestions and directions for teachers to enhance their teaching. This material along with the SIP can be utilized to support observations, communications, and conference dialogues which can be translated into pertinent directions for the next year’s work.

Specific Elements
Elements from the documents should be included in evaluations of administrators as well. Straight forward, action oriented directions gleaned from curriculum documents, School Improvement Plans, and state standards will help administrators focus on the goals of their school, region, and district. Starting a school year with a prescribed plan of action as outlined in the evaluative process ensures an emphasis on outcomes and goal oriented instruction.

Consistent use of the educational tools provided by the state, district, and individual schools helps create and support the overall components of student learning. Each document is aligned; each document is part of the foundations of teaching. With the infusion of these documents into evaluations, discussions, and communications, a common language and a common understanding emerge. Both are essential to success.

Written By: Pam Hicks
RPDP Administrative Trainer

Do you need…
- conferencing and observation aids?
- supportive material for an evaluation?
- communications for parents?

Beverly Hudson

Ms. Hudson has been principal at Rowe ES for four years. She began her educational career as a science teacher for the Department of Defense Schools. Her travels took her to schools in Cuba, Holland, and England. After ending her tenure with the DDS, she became a principal at a middle school in Tucson, AZ. CCSD welcomed her as an assistant principal in Laughlin NV and was appointed to Rowe in 2003. Since arriving at Rowe ES, major changes have taken place on the outside of the school and on the inside of the school.

Colorful murals, manicured lawns, creative signage, and newly painted exterior invite visitors to the school. The “makeover” of the 40 year old school has created a positive learning atmosphere for the staff, students and community. Students enjoy the comfortable, well kept surroundings and teachers utilize this positive atmosphere to create innovative strategies and teaching practices. Students come first at Rowe ES and their instructional leader along with the dedicated staff exemplifies what hard work can accomplish.

The “inside” of Rowe ES has also changed. Teachers voted to utilize one planning period a month for Structured Teacher Planning Time (STPT). Under the direction of their principal, the teachers have used this time to share and create sound teaching practices. Students come first at Rowe ES and their instructional leader along with the dedicated staff exemplifies what hard work can accomplish.

Dr. Elizabeth Howe

Dr. Howe has been principal of Greenspun JHS for two years and an administrator in CCSD for 10 years. Dr. Howe has worked diligently to sustain and advance the achievements of Greenspun JHS faculty, staff, and students. School initiatives during the past two years have focused on maintaining quality teaching, enhancing the learning environment, and supporting new endeavors to support student achievement.

Due to the generosity and support of Dr. Howe, Greenspun JHS will again be the site of the Regional Professional Development Program's Summer Institute. More than 400 teachers are expected to attend this summer, and special preparations to ensure a positive program have already begun. The efforts of the Greenspun JHS community will provide an exceptional learning environment for the 2007 RPDP Summer Institute.

In addition to her efforts on behalf of CCSD teachers and students, Dr. Howe is currently President Elect of the Clark County Association of Secondary Principals, an active member of Delta Kappa Gamma, and a national certified trainer of Breaking Ranks in the Middle.
In **Movie**—“WOW” narrative, type text, put in music and then create their very own author to introduce to the class through Photo Story 3. They of their research project. In American Literature, students choose show program available to students to build a digital picture show appropriate text—“WOW”. Photo Story 3 is a digital picture lexile levels. The ultimate goal is for students to meet their fit into the “WOW” category.

Teachers of “WOW” technology enjoy technology for the support it provides in the classroom. However, when technology is used in the classroom, it is to assist and/or support student learning. Good teaching is not to be replaced with good educational technology, but rather “WOW” educational technology should be implemented to support good teaching. Furthermore, if technology is going to reach “WOW” levels, training must be brought to the teacher rather than teachers having to seek out the training.

Great “WOW” integration technology is available everywhere in the 21st century for all levels of learning. What would one consider critical “WOW” technology to be? There are a few examples of new and exciting interactive technology for the classroom which fit into the “WOW” category.

In **Language Arts**, teachers utilize Scholastic Read 180. As an interactive tool, students receive assistance at their reading lexile levels. The ultimate goal is for students to meet their grade level benchmark so they may be successful with grade level appropriate text—“WOW”. Photo Story 3 is a digital picture show program available to students to build a digital picture show of their research project. In American Literature, students choose an author to introduce to the class through Photo Story 3. They narrate, type text, put in music and then create their very own movie—“WOW”.

In **Math**, Moogie Math is a computer program that focuses on the Nevada Proficiency Exam. It allows students to work on questions from each of the mathematic strands (algebra, data analysis, geometry, etc.), and provides them with immediate feedback for each question. The program can be installed to the network, so teachers can track students and chart their progress each time they use the program. The students can also make their own worksheet from the program to enhance their learning in an area. Super Math Tutor is a website provided by the Clark County School District (CCSD) for all sophomores, juniors and seniors. They can use this tutorial at school or at home. This program first allows students to take a practice test, then quick tests for the strands in which they did poorly, and finally, it opens tutorials in the appropriate strands based on the results from the previously listed tests. Teachers have administrative rights so they can view the students who have used the site and track their progress—“WOW”.

In **Science**, using “Vernier” software gives students the ability to experience science like never before. Investigations that were at one time impossible are now simple. The equipment (hardware) and software provides the opportunity to ask even more questions and test hypotheses immediately. Students become excited to conduct their own experiments—“WOW”. OPAC (Office Proficiency Assessment Certificate) is used to assist students with tracking their own achievements in the Career and Technical Education Department. Students create a data bank for work, take quizzes and tests, and then receive their results due to a correction device instantaneously—“WOW”. These are just a few examples of the new integration of “WOW” technology for students and teachers.

New assistive technology could not be “WOW” without significant hardware and technological advances. These “WOW” areas are, but not limited to, LCD projectors, KLVX Video Streaming with quiz builder, internet resources, iPods, making movies (Premier Elements), PowerPoint, teacher’s individual web pages, and more!

Finally, as a teacher at the high school level for over 25 years, I have seen many innovative ideas come and go. With our ever-changing world, technology will only continue to play a more pertinent role in education. It is important for the teacher to continue to receive training in technology and to implement these new programs into the classroom if current students are to remain competitive in today’s society! Teachers, it is now time to say “WOW” and use “WOW”!

*Written By: Dr. Cal Wulfsberg*  
Shadow Ridge High School

**Resources**

Contact your building ECS for further information and account access.

OPAC, (Office Proficiency Assessment Certificate), [www.opac.com](http://www.opac.com) Career and Technical Education utilized ABS80 funds to implement this in all high schools. Use the link to explore the different tests and see how teachers can create their own assessments.

Vernier Software and Technology, [www.vernier.com](http://www.vernier.com) Vernier Software & Technology produces hardware and software for data collection in high school, middle school, and college science courses.

KLVX United Streaming, [klvx.unitedstreaming.com](http://klvx.unitedstreaming.com) Video Streaming from KLVX PBS is a free resource that gives students and teachers access to more than 5,000 full-length and 50,000 clips of core-curriculum, standards-based video programs instantly - over the school districts Wide Area Network (WAN).

Scholastic Read 180, [teacher.scholastic.com/products/read180](http://teacher.scholastic.com/products/read180) Scholastic Read 180 is a comprehensive reading intervention education program that helps improve reading proficiency, reading skills, and reading comprehension.

Moogie Math, [www.emanuelsoftware.com](http://www.emanuelsoftware.com) Moogie Math is elementary and high school math intervention and remediation software designed to assist teachers and their students with mathematics proficiency. Originally designed for the Ohio Math Proficiency Tests, Moogie Math was customized for Nevada state and national tests.
Math is not just about crunching numbers! Just as the TV show, “Numb3ers” dramatically states at the top of every show, “We all use math everyday!” If a teacher takes a bird’s eye view of what teaching math effectively looks like, he/she would see math integrated with reading, writing, social studies, science, art, music, daily class routines…you get the picture. Math can easily be a part of all the disciplines. So, how does math fit into reading and writing specifically? How do we get students (and teachers 😊😊) to understand that reading and writing about math is very important to the process of teaching math?

It’s not that hard….we have students read and write about math!

**Reading:**
And…we show them how much we value reading and writing in math by consistently offering opportunities to do so on a daily basis. I would be remiss not to point out that since most of us are using one of two main math programs (no names needed), there is opportunity to read from the texts every day. That’s a no brainer. Okay, how else can reading be incorporated into math? What about the reading programs? Look for ways to link math concepts you are teaching with the stories being covered in language arts this week.

What about the hundreds (thousands?) of children’s literature selections that focus (or could focus) on math? Anything from Marilyn Burns, the guru of math and children’s lit would be a great place to start. What about some of your favorite authors of children’s literature? Eric Carle, Mem Fox, David M. Schwartz, Maurice Sendak, Shel Silverstein, Eve Bunting, Jan Brett, Judith Viorst, Elinor Pinczes, the list goes on and on, and I am certain I have annoyed some of you because I didn’t list your favorite author! But, that's the point! There are too many to mention!

Think of how motivating and entertaining it would be for students (and you) to take a few minutes to read a great book like “The Greedy Triangle” from Marilyn Burns during a math lesson focusing on geometric shapes! There are a lot of “teachable moments” that can come to life while reading aloud to kids!

**Writing:**
What about writing? How do you incorporate writing in your math lessons? Do you have students do the typical “reflection writing” piece as prescribed in your math program? If you do, good! What about math journals? Do you use them...
effectively? Do you read them from time to time to show your students you value their writing enough to want to read their responses regularly? I would bet that most teachers incorporate writing through the use of math journals on a regular basis. That is great.

I'd also bet that teachers don't always think of linking how students write in math to how they write in all other content areas. Meaning, all the cool graphic organizers used, methods of organizing thoughts, ways to remember information that are constantly taught to help students write or learn more effectively, are equally powerful tools when used to write about math!!! Just think of the lights going off in student's heads as they use graphic organizers they learned about in language arts to help make sense of procedures for reading word problems or remembering algorithms, or definitions and key vocabulary they are learning in math.

Writing about math also helps immensely when communicating in math. Regularly justifying or explaining their answers in writing, students are given rich opportunities to organize their thoughts. Justifying and explaining also forces students to reflect on their learning. It is especially helpful for those kids that get the right answer, but can't explain how they got it. They "just know." (sigh)

Do you think of written responses in terms of assessment? You can! What better authentic assessment is there than reading students explanations of how they solved problems? You can trace their steps, and you will have a much better idea of the degree of understanding for that student.

Fourth and fifth grade teachers know the importance of writing about math. Just mention “CRT constructed response.” Incorporating reading and writing into math will take very little time in terms of planning if you have access to resources. Check your library. You should be able to find many books that help support your math instruction.

Written By: Dana Martin
RPDP Elementary Math

Frequently Asked Questions about Facts & Procedures and Technology:

Q: Do timed tests help students learn their basic facts?
A: NO! Timed tests help students with automaticity (mentally getting answers quickly, or automatically). Timed tests should be used only after students have mastery or near mastery of a fact. If students need to count on their fingers to get answers during timed tests, they will learn something—they will learn how to count on their fingers even faster during timed tests!

Q: How important is it to teach basic facts using manipulatives?
A: EXTREMELY important! We teach to all modalities, right? Then we need to employ various manipulatives to reach all learners. Manipulatives include, but are not limited to, flash cards (the sky is the limit on types of flash cards), five-frames and ten-frames, counters (quick tip: lima beans spray-painted on one side are easy to make and are very cheap!), playing cards, and all the wonderful board games, just to name a few examples.

Q: Are there strategies to teach basic facts?
A: Yes! Go to www.rpdp.net and select “Math,” “Elementary Resources,” “Basic Facts,” “Strategies for Basic Facts.” There you will find pages of strategies to help teach basic facts! There are some strategies that are particularly interesting!

Q: How do I incorporate technology in math?
A: The standard answer for most teachers is through the use of computer math games/programs, and software. Some teachers forget that our students are a generation of “Techies”. The following is a list of ways to incorporate technology in the classroom:

- Power Point
- Videostreaming via VegasPBS
- Internet: Interactive activities on-line
- PDA’s
- Podcasts
- Cell phones
- iPods

Check with your ECS to learn more. You can also register for RPDP technology classes that cover all of the above, and more, all while earning graduate university credits!
Being a fourth grade teacher, I am constantly thinking about what I can do to prepare my students for the upper grades and even college. As children go through their education, there becomes more of an emphasis on researching and writing reports, especially in the subjects of science and social studies. There are so many components to writing reports that the process of finding information and organizing it becomes difficult for students to accomplish. Last year, I had the opportunity to attend an educational seminar presented by Tony Stead, an Australian educator who has taught in elementary schools and lectured at the University of Melbourne, who created the Reading and Analyzing Nonfiction (RAN) strategy. By using this strategy my students are very successful when researching and writing reports.

The RAN chart is a modification of the well known K-W-L chart which is used as a graphic organizer for comprehension. In a traditional K-W-L chart, students record what they ‘Know’ and what they ‘Want to Know’ before reading a text. After the text is read, the students record what they ‘Learned’. One concern that Stead had with the K-W-L chart was that it might not support students in the process of digging deep enough into the content. Another concern was for the students who had limited background knowledge on the topic of the text. The problem with the K-W-L chart is in the ‘Know’ section. Students may have incorrect background knowledge that could lead to misconceptions on the topic being researched. Stead addressed these concerns by creating the RAN chart that includes five categories. The RAN strategy prompts students to locate new content within the text, which increases, reinforces, and clarifies the students’ background knowledge.

<table>
<thead>
<tr>
<th>What I Think I Know</th>
<th>Confirmed</th>
<th>Misconceptions</th>
<th>New Information</th>
<th>Wonderings</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first category in the RAN chart is called ‘What I Think I Know.’ This allows the reader to acknowledge that not all background knowledge may be accurate. In other words, it allows for approximations of knowledge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The second category is titled ‘Confirmed.’ This category allows learners to confirm prior knowledge that they have learned through science experiences as well as what they read and research in the content area. Stead states, “Too often we take children’s prior predictions and prior thinking before reading a text, but never go back to confirm it based on what they have just read.” This is also a great way for students to reflect on the facts presented in a text that may be different from their prior knowledge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

That idea directly leads into the third category titled ‘Misconceptions.’ This was a section that Stead did not include in his original design of the RAN chart. It was later included through his work with children in the upper grades. Stead explains, “Children realized that as they read through a text, some of their prior knowledge was proved incorrect.” This section reinforces the thinking that our prior knowledge is not always accurate and that through reading and observations we are able to strengthen our background knowledge about a specific topic.

The fourth category in the RAN chart is called ‘New Information.’ This section encourages the students to think about information that they found in their readings, observations, and investigations. This section helps students to gather new information about the topic being researched.

As students compile this information in the fourth section, they may think of more questions, which lead to the fifth category called ‘Wonderings.’ Students may raise different questions during and after their observations, investigations, and readings. “It makes sense to include this question at the end of the reading process and not at the beginning, as is the case with the K-W-L,” Stead clarifies.

Fourth grade teacher, Brandon Danowski, shares a reading strategy that can be used with students to strengthen their comprehension of informational texts as well as become more critical of the information that they are reading so that it provides support for the science concepts they are learning.
Experience with RAN:
In my own classroom, I have incorporated the RAN strategy into almost every subject that I teach. I have had a lot of success using this strategy to help my students compile research for science and social studies reports. I have found it to be a great way to help students focus on the reason for writing their papers. I have used the RAN strategy to help my students investigate and write papers on topics ranging from space to the water cycle to different forms of energy.

I am also using the strategy to help my students to read and comprehend textbooks. Textbooks can be difficult and intimidating for struggling readers to decode and understand. With the use of the RAN strategy I have found that students’ prior knowledge takes more of a central role in relating to the text. Through prior knowledge students can make connections to the text that will help them commit to memory important information from the text.

The use of the RAN strategy has helped my students with researching, organizing, and writing over a variety of topics. I have also found this strategy a great way in assisting students to read and comprehend textbooks. Giving children the tools to succeed should be the goal of every teacher and the Reading and Analyzing Nonfiction strategy (RAN) is one such tool that helps to accomplish this.

Written By: Brandon Danowski
Rogers Elementary School

RPDP TRAINER ANNOUNCEMENT

AnnaMaria Behuniak
RPDP Trainer

This issue of Shop TALK would like to recognize one of its own teacher trainers for her exemplary work on being named as the President of the National Science Teacher Association Advisory Board.

AnnaMaria Behuniak has previously served (2003-2006) on the NSTA’s Preschool-Elementary Committee. Congratulations to Anna Maria for all her accomplishments.

Elementary Science NEWS TALK!
Set aside the week of June 11 – 15 and come take part in the RPDP Elementary Summer Institute. Science classes that will be offered during the institute will include Science Workshops for both primary and intermediate grades as well as science and the ELL learner. Dr. Dave Crowther, UNR professor and author of Science for English Language Learners, will be presenting two sessions on this topic during the institute.

Registration will be on Pathlore. For additional information or questions, please contact Sandy Davis, 799.3835 extension 236, or Anna Maria Behuniak, 799.3835 extension 248, or via interact.
The kids don't know their basic facts! If I had a dollar for every time I've heard that, I could comfortably retire from teaching. Well, maybe not retire, but at least I could afford to go to Hawaii every Winter Break. At any rate, that cry is not a recent phenomenon, nor is it confined to any particular grade level. It has been heard for years in the classrooms and teachers' lounges of elementary, middle, and high schools. It would not be surprising if Plato uttered the phrase from time to time when teaching in the Academy.

The discussion of basic facts must begin with an agreement of what it means to "know" a fact. How do we know a student knows? Consider the most common facts with which teachers find frustration: multiplication facts. What does it mean to “know” the multiplication facts? If a student is asked, “What is 7 × 8?” should they respond in 5 seconds? 3 seconds? 1 second? Should they be allowed to skip count by 8’s until they get it? May they use manipulatives or their fingers? What does it mean to “know” 7 × 8?

The best definition I have found, and one that is also easily understood by even the youngest students, is that knowing a fact is like knowing one's name. Ask a five-year-old what his name is and there will be no hesitation—the response will be immediate. The child does not need to stop and think, recall some procedure, or pull out identification. The answer is nearly instantaneous. That is what “knowing” a basic fact should be. When a fifth-grader is asked, “What is 7 × 8?” the response “56” should come in the same period of time as if he were asked, “What is your name?” That is how we know he knows, and is how he knows he knows, too.

The next question to answer is, “What is a basic fact?” Generally, a basic fact is a defined value, a formula, an outcome from certain arithmetic operations on particular numbers, or some other mathematical concept that students need to efficiently do or learn higher-level mathematical processes. For instance, when students are learning to multiply multi-digit numbers using traditional algorithms, having to repeatedly look up, skip count, or finger-manipulate their way to 7 × 8 = 56 hampers the process of learning and practicing the new procedure. We can’t ask students to build the walls of their mathematical houses if they have to keep going back and re-pouring the foundation.

There may be some disagreement among teachers though as to what is a fact and what is not. For instance, all math teachers (hopefully) agree that 7 × 8 = 56 is a basic fact. But is 12 × 11 a basic fact? Some teachers, as well as I, say it is, while others believe multiplication facts are those with factors of only 10 or less. It’s doubtful that many, if any, would classify 13 × 91 as a basic fact. What specifically is and is not a fact can be a topic for discussion among teachers, but common sense should prevail for the bulk of them, and we can debate the gray areas at another time.

Another consideration is that we often cannot often separate what a basic fact is from when we expect students to know it. Few teachers would argue that a 2nd grade student should “know” 7 × 8 = 56. On the other hand, few teachers would argue that a 4th grade student shouldn’t. As students late in 2nd grade and early in 3rd grade begin to learn the concept of multiplication, we would not expect them to “know” that 7 × 8 = 56, at least not at the what-is-your-name level of knowing. But, as students progress through the 3rd grade, we expect them to be able to find that 7 × 8 = 56 through their conceptual understanding of multiplication—a different level of “knowing.” By 4th grade, however, we expect that those concepts should be well-understood and 7 × 8 = 56 should be “known” at the level of instant recall.

Let’s consider again what constitutes a basic fact and when. The addition tables and corresponding subtraction facts? Yes. How about the multiplication tables and corresponding division facts? Certainly. Unfortunately, we often stop there. Depending on the level of the student, there are a lot more facts that we should expect student to “know.”

Consider the abbreviated table of basic facts to the left that we expect students to “know.”

<table>
<thead>
<tr>
<th>Grade</th>
<th>Basic Fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>second grade</td>
<td>a triangle has three sides</td>
</tr>
<tr>
<td>third grade</td>
<td>1 yard = 3 feet = 36 inches</td>
</tr>
<tr>
<td>fourth grade</td>
<td>1/2 = 2/4 = 5/10</td>
</tr>
<tr>
<td>fifth grade</td>
<td>formula for the area of a rectangle</td>
</tr>
<tr>
<td>sixth grade</td>
<td>1/5 = 0.20 = 20%</td>
</tr>
<tr>
<td>seventh grade</td>
<td>π = 3.14 = 22/7</td>
</tr>
<tr>
<td>eighth grade</td>
<td>formulas for the circumference and area of a circle</td>
</tr>
<tr>
<td>Algebra I</td>
<td>the slope of a horizontal line is zero</td>
</tr>
<tr>
<td>Geometry</td>
<td>ratios of sides of 30-60-90 and 45-45-90 right triangles</td>
</tr>
<tr>
<td>Algebra II</td>
<td>quadratic formula</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>sin²x + cos²x = 1</td>
</tr>
<tr>
<td>Statistics</td>
<td>68-95-99.7 rule for Normal distributions</td>
</tr>
<tr>
<td>Calculus</td>
<td>d/dx e^x = e^x · dx</td>
</tr>
</tbody>
</table>

Students should be able to rattle off the basic facts as easily as stating their names.
In this issue of Shop TALK, RPDP would like to recognize the following individuals for their outstanding work in education.

**RPDP'S TEACHER**

**CHRISTINA GUASTO**

Las Vegas native Christina Guasto’s mother always said that she would try to change the world and that she would be disappointed when she realized she couldn’t do it. To Christina teaching is just that, changing the world one student at a time. If she can make her students feel the way she feels, then she feels she’s done her job.

Christina taught full-time last year at the Andre Agassi Preparatory Academy as an apprentice teacher in the fifth grade. She is currently a fifth grade teacher at McWilliams Elementary School. She is working on her masters in elementary education with emphasis in science and Math.

As Christina says, “I was always rolling in the mud trying to dig for China, so it makes perfect sense as to why I love science. I love being a part of something that people researched for years and years. There is much history to what you are doing!”

Christina is participating in the RPDP elementary science case study project for this year.

**LISA BIESINGER**

Since receiving CCSD’s New Teacher of the Year Award in 1998, Lisa Biesinger has excelled both in and out of the classroom. Her expertise is evident across the board with at-risk students in Math Fundamentals and honors students in Precalculus and AP Statistics. As Department Chair, Lisa's leadership shines as she oversees proficiency math camps and serves on various school committees.

Outside of her school-wide duties, Lisa also designs and provides professional development opportunities for teachers district-wide. She has provided training in Acces, Fathom, and graphing calculators, just to name a few. She is also involved in curriculum work, including the revision of the Algebra 1 course syllabus.

In Lisa’s own words, she states that she is “dedicated to enthusiastic and dynamic teaching as a means of creating and nurturing a lifelong love of learning”. This is evident in her students’ words as well: “…she never seems to give up on a student… she makes you want to learn and keep learning… I know that she has not only changed my life but my fellow classmates too…”

Thank you, Lisa, for your hard work and dedication to the students in your classroom and your colleagues throughout the district.

**KELLY SEDLAK**

This is Kelly’s third year in the Clark County School District and fourth overall. She is currently teaching 8th grade geography. Kelly loves to incorporate hands on activities and technology to teach geography. Students create brochures, postcards, topographical maps, and even food from around the world. They also get to take virtual field trips to foreign countries and cities through the internet and various technological resources.

Kelly also enjoys being involved on Leavitt’s campus and is the assistant coach for the Leavitt girls’ basketball team, in addition to helping out with ski club. She is finishing up her Masters in Educational Leadership at Grand Canyon University.

**MARIA DUFEK**

Maria has been teaching 26 years—24 here in CCSD, 2 in California. She began teaching as a Bilingual Resource teacher; has taught special education and general ed, elementary, Maria has worked as a teacher at Walter Bracken, William E. Ferron, Robert Taylor and Jay W. Jeffers ES; as a Project Facilitator with the MASE Project (Math and Science Enhancement Grant); at CPD, with the Math Audit team and as a trainer for RPD. She is currently a Math Mentor at Jay W. Jeffers Elementary School in the Northeast Region.

Maria loves her work... learning and sharing with others how to best meet the needs of our students. She provides professional development in mathematics at her school through “GG’s”—“Getting it Going” then “Getting it Good” sessions after school and on weekends. Topics have included Number Talks, Geometry, Measurement, Number Sense, Problem Solving, Data Analysis and “Sprinkling” to the CRT’s as well as implementation of Kathy Richardson’s stations for grades K-5. Family Math and Science sessions have blended math and science inquiry into very successful and well-attended opportunities for all.

**ELIZABETH MARCONI**

Hailing from Pennsylvania, where she earned a BS in Biology and MEd in Curriculum, Instruction and Technology from Temple University, Elizabeth is in her sixth year of teaching science for the Clark County School District. She currently teaches Biology I and Biology I Honors to students at Coronado HS. Prior to teaching high school she spent three years teaching Life Science and Earth Science at Canon MS.

Elizabeth has been a part time trainer with RPDP for the past three years. She teaches the MS Life Science Semester I and Semester II courses which are part of the Middle School Science Certificate.

Continuing with her commitment of providing high quality professional development, Elizabeth works with CPD as a facilitator for the New Teacher Induction Program.

**DINA McCLELLAN**

Dina McClellan, a 1st grade teacher at J. L. McWilliams Elementary School, has been teaching in CCSD since 1999. Dina earned her BA in Elementary Education in 1999 and completed her MA in Elementary Education in 2003.

Dina volunteered to be a part of the RPDP Science Case Study Project this year as a way to further her knowledge and strategies and strengthen her science skills. She took two RPD courses last fall with instructor, Sandy Davis—Science Workshops for the First Grade Classroom and The Science of Teaching Science. Both of these classes have proven to be valuable to her and her students. Dina was able to take the information and strategies learned in the classes and immediately implement them in their classroom.

In March 2007, Dina and fellow McWilliams Elementary colleague, Christina Guasto, will be attending the National Science Teachers Convention in St. Louis, MO.
As a geometry teacher I struggle with lack of interest in my subject from my students. I decided to bring reading and writing to my class as interest builder. I found Abbott's (1927) Flatland that can be read for its straight geometric description as well as for its social commentary and satire. However, I was using this book as an example of creative writing that involves geometric terms.

In Flatland, all the characters are two-dimensional geometric figures that represent different social classes. The first part is essentially a social satire. In the second part, the main character travels to other dimensions to describe the relative merits of different points of view.

Before a lesson, students are asked to read the book for a discussion in a class. Class discussion centered on the basic plot: its purpose and social context; details of Flatland, other lands, and their inhabitants; and the symbolism.

The following questions were discussed:

- What is your favorite character(s) and why?
- Can you describe different types of land in the book? Which one you liked the most and why?
- What is the purpose of the book?
- How do you understand a social context of the book?

After the discussion of the book, students worked in groups of four on creating a story with vocabulary they just learned in a class. A list of words includes tangent, sine, cosine, identity and some other terms that relate to these four words. For example, an adjacent side, an opposite side, hypotenuse and etc. Students were to use at least four geometry terms in their story and use them in an everyday rather than a geometry context. Before students started working in groups, we went over definitions. To help clarify the assignment, I gave the students more writing examples. For instance:

- Write a letter to your English teacher/parents/sister/brother in which you explain the basic ideas about tangent, sine, cosine, and identity.
- Suppose you are an investigative reporter about to interview a tangent, sine, cosine, or identity. Make a list of at least ten questions that you would ask tangent, sine, cosine or identity.
- Pretend that you are tangent/sine/cosine/identity. Write a letter to a friend who has not seen you for a number of years. Tell the friend how to recognize you when you meet your friend at the airport.

When students finished, groups were asked to share their stories with the class.

I was involving my students in self-reflection or peer evaluation of the assignment because I believe that it is a way to help them to gain independence as learners. Besides my personal experience, several studies have shown that at-risk students can improve their academic achievement and intrinsic motivation if they are taught how to set goals and evaluate their progress toward those goals (D’Agostino, 1996).

Self-reflection or peer-evaluation in my classes showed how critical and fair my students were about themselves in terms of creating a story and the presentation. One group did not create a story at all. As I was analyzing the reasons, I found out that it was due a lack of math knowledge about the topic. I also saw that some students in this group were Spanish speakers. As a teacher I was trying to help them with the activity, but I felt that it was still very difficult for them due the language.

<table>
<thead>
<tr>
<th>Scoring Rubric</th>
</tr>
</thead>
<tbody>
<tr>
<td>All members of a group participated in a representation</td>
</tr>
<tr>
<td>0: only one person was representing a story to the class.</td>
</tr>
<tr>
<td>1: all members of a group were representing a story to the class.</td>
</tr>
<tr>
<td>A story is creative</td>
</tr>
<tr>
<td>0: a story is boring, plain, informative</td>
</tr>
<tr>
<td>1: a story is creative, fun, and hooks a reader’s attention.</td>
</tr>
<tr>
<td>All four words are used in the story</td>
</tr>
<tr>
<td>0: one or two words were used in the story.</td>
</tr>
<tr>
<td>1: all four words were used in the story.</td>
</tr>
<tr>
<td>It is easy to read the story</td>
</tr>
<tr>
<td>0: organization of the story is missing or weak; no supportive information is evident; no references to the topic.</td>
</tr>
<tr>
<td>1: structure of the story is clear and evident; examples are used to support the ideas; a story is connected to the topic.</td>
</tr>
</tbody>
</table>

I was using informal and formal assessments during the lesson. Informal assessment involved teacher observation, class discussion, and writing activity during group presentations such as self- and peer evaluation. Formal assessment included teacher and group grades according to the scoring scale. The following point scoring scale was used to evaluate each group story:
In my opinion, overall, the writing strategy turned out to be fun and helped lay the foundation for future learning of key geometry terminology. However, I discovered that my students have never done this before. I believe that combining math and literature in classroom activities is a way for teachers to invite children into the world of mathematics. Using literature in a math class helps dispel the myth that math is dry, unimaginative, and inaccessible and generates interest to math. Also, it provides contexts that help bring meaning to abstract concepts.

However, my practice showed that children are not given the opportunities to experience the connection of literature and math. Many aspects of this connection are so beneficial to students. One aspect of literature connection writing is especially well suited for preparing students to read and learn (Weech, 1994; Zamel, 2000). Writing before learning from text or a lecture allows students to explore what they already know about a topic, thereby building a bridge from their prior knowledge and experiences to the new information (Hamann, Schultz, Smith, & White, 1991). It also is an effective medium for self-reflection. Students can decide where they possess sufficient knowledge and where gaps in knowledge exist. Based on this information, they can seek people and resources to expand their knowledge base. Writing as readiness-to-learn strategy can also increase student motivation and interest.

Written By: Anna Martynova
Durango High School

References

Linking mathematics instruction with reading and writing may motivate more students. The more active they are the less disruptive they’ll be. With books students may become more interested and connect the mathematical ideas to their own personal experiences. I always start my year off with the The Math Curse by Jon Scieszko and Lane Smith. Kids are being changed in and out of schedules that first week or two and so after reading the book, they rewrite the book according to their day. I get many different variations on the book. It also gets them to realize that, “Yes, math is all around us on a daily basis.” Starting off with a reading and writing assignment also helps those students with different learning styles. Literature helps promote critical thinking and gives me the opportunity to provide a context for using mathematics to solve problems. And at the middle school level, I need a tool to make math easier for my students to understand.

By varying what you do after each book will want your students to learn more. If you always have them write a new version of the book, many students tend to fall back into the boredom syndrome. Children can learn through literature and writing, but you must vary the activities that follow. Journal entries can be made, projects can be built (with directions or peer evaluations) and variations on the story can be rewritten and retold. All of these tie into the incorporating reading and writing into mathematics. There are several books that tie in with mathematical concepts.

Some mathematical ideas (concepts) have obvious practical applications in everyday life. These are the concepts that students rarely have problems with. It is the other ideas that seem so very abstract, with little apparent connections to the real-world as most of us experience it, that they cannot grasp. It is like a fiction book! When we can express these mathematical ideas in stories, it shows students the importance of their mathematical skills in relation to their life experiences.

WAYS TO USE READING AND WRITING IN MATH
* to provide context model for an activity with mathematical content
* as a manipulative that can be used for various learning styles
* to inspire a creative mathematics experience for students
* to pose interesting problems and decrease their fear of word problems
* to prepare for a mathematical concept or skill
* to develop or explain a mathematical concept or skill

BOOKS AND THEIR CONTENT STRANDS
* Spaghetti and Meatballs for All! by Marilyn Burns (area and perimeter)
* Two of Everything by Lily Toy Hong (exponential growth- doubling)
* The 512 Ants on Sullivan Street by Carol A. Losi (patterns)
* How Many Bears? by Cooper Edens (equations)
* Sir Cumference and the Round Table: A Math Adventure by Cindy Neuschwander and Wayne Greeten (circles and circumference)
* The Math Curse by Jon Scieszko and Lane Smith (numbers and operations)

Written By: Linda Stevens
Cadwallader Middle School
In January of this year, Writing Next was unveiled to highlight specific teaching techniques that positively impact student writing. Fueled by recent reports from the National Commission on Writing which state seventy percent of students in grades 4-12 are low achieving writers (Persky et al., 2003), the authors of Writing Next collected, categorized, and analyzed experimental and quasi-experimental research on adolescent writing instruction to determine which elements of existing instructional methods are effective (Carnegie Foundation, 2007).

By synthesizing large bodies of research and then selecting practices that have a positive effect on student writing, Writing Next outlines eleven “Effective Elements to Improve Writing Achievement in Grades 4 to 12.” These elements are in order by the positive effect of the practice on student writing:

1. Writing Strategies
2. Summarization
3. Collaborative Writing
4. Specific Product Goals
5. Word Processing
6. Sentence Combining
7. Prewriting
8. Inquiry Activities
9. Process Writing Approach
10. Study of Models
11. Writing for Content Learning

The Elements Defined

1. Writing Strategies (Effect size: 0.82)
   This element focuses on teaching all steps of the writing process in such a way that students can use specific strategies independently. Since the purpose of teaching any strategy is to provide students with a tool for use in their own learning, this element reminds us to give students explicit instruction in how to use a strategy and then allow them to apply the strategy in various writing situations.
   - Purpose Statement Strategy: Before beginning a writing, the student drafts a “Purpose Statement” that uses the following format:
     
     My purpose is to (verb) (reader) about (subject in a few words).

     Example: My purpose is to inform my classmates about the dangers of drinking and driving.

     When using the Purpose Statement Strategy in class, students write their statement during the prewriting stage. They continue to consult it during the writing and revising of the piece, making necessary adjustments when needed to ensure the original purpose is being addressed.

2. Summarization (Effect size: 0.82)
   The second element stresses the use of explicitly and systematically teaching students how to summarize texts. The simple practice of writing a summary using an established pattern helps students synthesize information and produce a written understanding of a text.
   - Sentence Synthesis: After reading a piece of text, the teacher identifies 4-5 important words from the reading and asks students to create a two or three sentence summary that utilizes the selected words.

3. Collaborative Writing (Effect size: 0.75)
   The research utilized by Writing Next notes that students working together to compose produces a stronger effect size than students composing independently. Creating an environment where students work together during the various stages of the writing process allows students the opportunity to work through writing challenges with peers and share their writing with a larger audience.
   - Sentence Synthesis Pair-Share: After students have completed their sentence synthesis, they share their writing with a partner. Each partner reflects on the writing and notes two positives about the summary and then gives a “wish,” or suggestion, for improving the summary. Once the feedback has been noted, students revise and edit their summaries before publishing.

4. Specific Product Goals (Effect size: 0.70)
   In this element, students are given specific, realistic goals for their writing. Students must first be given (or choose) the purpose of the assignment and note the characteristics of the final piece.
   - Writing Rubrics: Before beginning a writing piece, the teacher discusses the purpose of the writing assignment
and the desired outcomes. The teacher and students brainstorm a rubric for the piece based upon the purpose of the assignment and any identified needs or standards. For example, if students are writing persuasive essays, the rubric may include citing specific evidence to support claims in the paper for a passing score.

5. Word Processing (Effect size: 0.55)
Compared to composing by hand, the effect of word processing instruction has a consistently positive effect on writing quality. Word processing programs allow students to move text easily, check spelling while composing, and produce legible writings. Low-achieving students' use of word processing equipment had a positive effect size of 0.70, proving that word processing is a necessary component in writing instruction.

6. Sentence Combining (Effect size: 0.50)
Sentence combining is an alternative approach to more traditional grammar instruction. In this writing element, students are asked to construct compound, complex, and compound-complex sentences from simple sentences. Direct modeling of how to combine sentences helps students locate basic sentences in their own writing and combine them using the techniques modeled by the teacher.

- Compound/Complex Revising: During the revising stage of the writing process, students review their writing and identify up to ten sentences that are “basic” simple sentences. Students highlight the sentences and then use a separate piece of paper to construct five compound sentences and five complex sentences using the original selections. Students should be encouraged to share their sentences with one another. Upon completing their revising, students insert the “deeper” sentences in the final draft of the paper adding more “flow” to the composition.

7. Pre-writing (Effect size: 0.32)
This time-honored element continues to help writers organize their thoughts and identify a topic before beginning a rough draft. Designed to encourage students to stop and think about their topics, pre-writing allows students time to gather their ideas and information together before diving into a writing assignment.

- Listing: Before beginning a composition, the teacher asks the students to list whatever comes to mind regarding a topic or type of composition. Once students have had a chance to create their list, the teacher asks the students to choose one of the items on the list as a possible topic. From that item, students are asked to list again—this time focusing on everything they know about the selected item. These ideas can now be used to create the rough draft.

8. Inquiry Activities (Effect size: 0.32)
Inquiry helps engage students in activities that help them create ideas for a writing task by examining and inferring the qualities of various types of data. Students are asked to explain the reasoning behind an action, compare or contrast behaviors or items, or examine the characteristics of various items.

- Art Appreciation: Using a picture or an overhead of a famous work of art, students spend time questioning the meaning or action in the artwork. Once students have had time to consider the artwork, give them time to write various types of compositions based on the picture.

9. Process Writing Approach (Effect size: 0.32)
This approach stresses activities that emphasize extending opportunities for writing, writing for real audiences, self-reflection, personalizing instruction and goals, and using the writing process throughout all finalized compositions. With this approach, the teacher provides direct instruction in a few cases, but primarily allows students the freedom and flexibility to discover and refine their own writing skills.

10. Study of Models (Effect size: 0.25)
Using models of writing throughout the writing process provides concrete examples of quality writing. Students should be encouraged to analyze the examples and attempt to use the patterns and forms in their own writing.

- Before beginning any writing assignment, share examples of professional writings that model your expectations. For example, if students are writing personal narratives, a teacher can read a short picture book that exemplifies the desired structure and pattern.

11. Writing for Content Area Learning (Effect size: 0.23)
Writing is one of the best tools to extend and enhance students’ learning of content material. Students who are asked to write in their content area classes utilize reflection and higher level thinking skills to re-organize information into a more personalized format.

- Journals: While working through a concept in a content area class, students are asked to record and reflect on what they have learned using a variety of prompts. Students can use these journals as an ongoing learning tool.

It is important to note that none of these elements should be used in isolation, nor should the elements together constitute a curriculum. For example, Writing Strategies (Element 1) might include Collaborative Writing (Element 3), Word Processing (Element 5), Prewriting (Element 7) and utilize a Process Writing Approach (Element 9). While much of what Writing Next recommends is standard practice in most English classrooms, it validates the current definition “best practices” in writing for many years. Take a moment to reflect on how you teach writing—how many of the 11 Writing Next elements do you currently employ?

Written By: Amy Raymer
RPDP Secondary Literacy
The purpose of this sheet is to explain the breakdown of concepts and question levels that will appear in the Nevada State High School Proficiency Exam (HSPE) for Science. The test is administered to all 10th grade students. All students entering 9th grade in the 2006-07 school year will be required to pass the Science HSPE to earn a diploma. This is in addition to the Mathematics and English HSPEs that the students are currently required to pass.

The planned schedule for the Science HSPE is:

- Spring (March/April)—The 2007 Science Field Test will be administered to all students in the 10th grade.
- Spring (March/April)—The 2008 Science HSPE will be administered to all students in the 10th grade. This will be the first “live” administration of the test and it will count for graduation.

In 2008, after the first “live” administration of the test, NDE will convene a committee of Nevada educators and other citizens to recommend a proficiency standard (i.e., minimum passing score) for the Science HSPE. The Nevada State Board of Education has the ultimate authority to set the passing score based on the committee’s recommendation or other criteria.

The plan is for the Science HSPE to follow the same format as the Math HSPE. The Nevada Department of Education (NDE) plans to have five or six versions of the test each year. Each version of the test will contain 60 common “core” questions. The score on these core items will determine whether or not the student has passed the Science HSPE. Embedded within each version will be an additional 15 unique field test questions, for a total of 75 questions per version. By using multiple versions, 75 to 90 questions are field-tested each year; NDE will continue to field test items so that new versions of the test can be developed. This will allow the state to release retired versions as practice tests as soon as is reasonable (2-3 years).

If a student fails the Science HSPE in 2008 and beyond, the student will be allowed to retake the exam. Students who are retaking the exam will complete a special version of the Science HSPE that contains only the 60 “core” questions. The additional field test questions will not be included on exams for students retaking the Science HSPE.

The 60 “core” questions in the Science HSPE are divided into four content strands:

- C1—Physical Science: Centering on properties of matter, energy, and the relationship of force and motion.
- C2—Life Science: Focusing on the structures and functions of plants and animals, heredity, the relationships of organisms with their environment, and biological diversity.
- C3—Earth and Space Science: Concerning Earth structures,

The student has passed the Science HSPE. Embedded within each version will be an additional 15 unique field test questions, for a total of 75 questions per version. By using multiple versions, 75 to 90 questions are field-tested each year; NDE will continue to field test items so that new versions of the test can be developed. This will allow the state to release retired versions as practice tests as soon as is reasonable (2-3 years).

If a student fails the Science HSPE in 2008 and beyond, the student will be allowed to retake the exam. Students who are retaking the exam will complete a special version of the Science HSPE that contains only the 60 “core” questions. The additional field test questions will not be included on exams for students retaking the Science HSPE.

The 60 “core” questions in the Science HSPE are divided into four content strands:

- C1—Physical Science: Centering on properties of matter, energy, and the relationship of force and motion.
- C2—Life Science: Focusing on the structures and functions of plants and animals, heredity, the relationships of organisms with their environment, and biological diversity.
- C3—Earth and Space Science: Concerning Earth structures,

The student has passed the Science HSPE. Embedded within each version will be an additional 15 unique field test questions, for a total of 75 questions per version. By using multiple versions, 75 to 90 questions are field-tested each year; NDE will continue to field test items so that new versions of the test can be developed. This will allow the state to release retired versions as practice tests as soon as is reasonable (2-3 years).

If a student fails the Science HSPE in 2008 and beyond, the student will be allowed to retake the exam. Students who are retaking the exam will complete a special version of the Science HSPE that contains only the 60 “core” questions. The additional field test questions will not be included on exams for students retaking the Science HSPE.

The 60 “core” questions in the Science HSPE are divided into four content strands:

- C1—Physical Science: Centering on properties of matter, energy, and the relationship of force and motion.
- C2—Life Science: Focusing on the structures and functions of plants and animals, heredity, the relationships of organisms with their environment, and biological diversity.
- C3—Earth and Space Science: Concerning Earth structures,
• C4—Nature of Science: Centering on scientific inquiry, using data and models to conduct investigations and make predictions about the natural world, and the relationships of science, technology, and society.

Student understanding of these content strands are measured against an established point of reference, referred to NDE as Benchmarks. Within each of the content strands, some Benchmarks are deemed “testable” by NDE and are coded with an “E/S” or possibly an “I/S” (e.g., N.12.A.1 “Students know tables, charts, illustrations and graphs can be used in making arguments and claims in oral and written presentations. E/S”). Although Benchmarks such as N.12.A.4 (“Students know how to safely conduct an original scientific investigation using the appropriate tools and technology. E/L”), are essential for students to know and be able to do, they will not be tested on the Science HSPE as they are coded with an “L” indicating that they are to be tested LOCALLY. Benchmarks that contain the code of “W” also will not be directly tested on the Science HSPE as they are considered to be a supporting or underlying concept or idea that enhances the understanding of the major concept, but in themselves are not that “big” of an idea. More about Benchmarks are included in Figure 1 (at the end of this document), which has been directly extracted from the Nevada Science Education Standards.

In addition to these four content strands, the 60 “core” questions are created to function at one of three ability level. The three ability levels are:

• A1—Fundamental Principles: Basic knowledge of science content and processes, including information about the processes of scientific investigations.
• A2—Conceptual Understanding: Beyond basic facts to stress the connections between basic facts and concepts and the larger general organizing principles (the “Big Ideas”) of science.
• A3—Practical Reasoning: Questions in this category assess students’ ability to use and apply their scientific understanding to solve new and unique real-world problems.

The percentage of questions dedicated to each strand and each ability level was set by a team of Nevada educators and community members who ranked each of the Benchmarks as to their importance for instruction (See Table 1).

Written By:
Secondary Science, RPDP
Nevada Department of Education
Dr. Janelle Bailey, UNLV

Figure 1. Explanation of Components of the Science Standards.
Advanced Studies Program

IMPORTANT NOTICE

Beginning in the 2007-08 school year, the final program (18 credits) MUST be taken through the Center for Teaching Excellence (not the SNRPDP Advanced Studies Program). However, any teacher who enrolled in any of these programs (CTE or SNRPDP) during the 2006-07 school year (and was at Master’s + 32) will be grandfathered in on the Advanced Studies Salary Column.

The first two (2) columns beyond the Master’s Degree column of the Salary Schedule may be attained by licensed personnel who complete either two (2) CTE programs or two (2) SNRPDP ASP programs (which are listed below). Participants may also opt to complete one (1) of each program. Once the Masters + 32 has been obtained, advancement to the Advanced Studies Certification salary column must be attained through the Center for Teaching Excellence (not from SNRPDP).

To enroll in one of the SNRPDP Advanced Studies Programs, call Chelli Smith at 799-3832 x230. If you have questions concerning the Advanced Studies Program, you may call Chelli Smith directly at the phone number above, or she may be contacted through InterAct. Registration begins May 1 and ends May 31; we encourage early registration since seats fill quickly.

SNRPDP Certification Programs

<table>
<thead>
<tr>
<th>Middle School Math</th>
<th>Middle School Science</th>
<th>Elementary Generalist</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Math</td>
<td>High School Science</td>
<td>Elementary Literacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technology</td>
</tr>
</tbody>
</table>

Teachers who enroll and successfully complete the SNRPDP Certification programs of study must agree in writing to the following conditions:

a. Implement the Components of an Effective Lesson,
b. Implement the teacher expectancies,
c. Allow SNRPDP personnel to observe classroom instruction,
d. Meet with SNRPDP personnel for a post observation conference,
e. Allow SNRPDP personnel to review student assessments,
f. Allow SNRPDP personnel to see statistical breakdown of student assessments, and
g. If needed, attend further professional development which the SNRPDP will compensate classroom teachers at $22/hour.

The SNRPDP does not evaluate classroom teachers and the information garnered by classroom observations and other discussions are confidential between the SNRPDP and the classroom teacher.
Advanced Studies Programs at RPDP

RPDP teams are offering an Advanced Studies Program (ASP) for teachers in Southern Nevada. The program consists of courses designed to provide teachers with the content and instructional strategies to facilitate their success as elementary, middle teachers respectively. It addresses major topics in the school curriculum and gives teachers multiple perspectives on teaching students who take the corresponding course. Each course includes modeling The Components of an Effective Lesson, Teacher Expectancies, linkage to other disciplines, interactive learning, and participation in a balanced delivery of instruction. A partial list of ASP courses and other fall offerings are listed below. To register use the following link to the Pathlore system: http://pathlore.ccsd.net/stc/student/psciis.

**ELementary LITERACY, Fall 2007 Course Offerings**

- **RPDL72013** Elementary Literacy (LASTEMS Program)
- **RPDL72020** Reading Instruction (ASP Program)
- **RPDL72022** Word Knowledge (ASP Program)
- **RPDL72203** Elements of Literacy (LASTEMS Program)
- **RPDL72204** Nonfiction (LASTEMS Program)

Additional class offerings may appear in the fall issue of Shop TALK

**Elementary SCIENCE, Fall 2007 Course Offerings**

- **RPSCI75303** AP Biology (ASP Program)
- **RPSCI75201** AP Calculus AB (ASP Program)
- **RPSCI75101** AP Economics (ASP Program)
- **RPSCI75302** AP Statistics (ASP Program)
- **RPSCI75301** AP Chemistry (ASP Program)
- **RPSCI75102** AP Microeconomics (ASP Program)

**Social STUDIES, Fall 2007 Course Offerings**

- **RPSC72000** AP Government Workshops: Workshop 1
- **RPSC72001** AP United States Government Workshops: Workshop 2
- **RPSCI72014** AP United States History Workshops: Workshop 5
- **RPSCI72013** AP World History Workshops: Workshop 1
- **RPSCI72012** AP World History Workshops: Workshop 2
- **RPSCI72011** AP World History Workshops: Workshop 3

**Secondary LITERACY, Fall 2007 Course Offerings**

- **RPDL72152** Grades 4 - 12 Internet Literacy (All content areas)
- **RPDL72153** Grades 4 - 12 Literacy in the Content Areas (All content areas)
- **RPDL72156** Grades 4 - 12: Teacher Research Techniques (All content areas)
- **RPDL72158** Gr 4 - 12: Methods in Critical Literacy
- **RPDL72160** Grades 4 - 12: Strategies to teach Vocabulary (All content areas)
- **RPDL72162** Grades 4 - 12: Non-Fiction Reading and Writing WS
- **RPDL72163** Grades 4 - 12: Building Literacy Through Wikis (All content areas)
- **RPDL72164** Grades 4 - 12: Reading Comprehension
- **RPDL72167** Grades 4 - 8: Analytic Trait Scoring
- **RPDL74000** Grades 6 - 8: Benchmark Workshop: Series
- **RPDL71003** High School: AP Literature & Composition Workshop Series
- **RPDL71004** High School: AP Language & Composition Workshop Series
- **RPDL71668** Grades 6 - 12: Teaching English Language: WS
- **RPDL71669** Grades 6 - 12: Using literature to teach the Analytic Traits
- **RPDL72170** Grades 6 - 12: Alternative Assessments in Literacy
- **RPDL72171** Grades 6 - 12: Strategies to Reach All Learners
- **RPDL72172** Grades 6 - 12: Methods in Critical Literacy
- **RPDL72173** Grades 6 - 12: Reading & Writing Strategies for Emergent Learners

Additional class offerings may appear in the fall issue of Shop TALK

**Secondary MATH, Fall 2007 Course Offerings**

- **RPDS72000** AP Calculus AB (ASP Program)
- **RPDS72001** AP Calculus BC (ASP Program)
- **RPDS72002** AP Statistics (ASP Program)
- **RPDS72003** AP Computer Science Principles (ASP Program)
- **RPDS72004** AP Computer Science C (ASP Program)
- **RPDS72005** AP Computer Science A (ASP Program)
- **RPDS72006** AP Computer Science (ASP Program)
- **RPDS72007** AP Computer Science Principles (ASP Program)

Additional class offerings may appear in the fall issue of Shop TALK

**SECONDARY MATH continued**

- **RPDM72020** HSMCP Geometry Overview for HS Teachers (ASP Program)
- **RPDM72021** HSMCP Trig and Analysis Overview for HS Teachers (ASP Program)
- **RPDM72022** HSMCP Intermediate 11-8/9 Plus (ASP Program)
- **RPDM72023** HSMCP Intermediate 11-8/9 Plus (ASP Program)
- **RPDM72024** HSMCP Intermediate 11-8/9 Plus (ASP Program)
- **RPDM72025** HSMCP Intermediate 11-8/9 Plus (ASP Program)
- **RPDM72026** WM/HS Content Course: Introduction to 11-8/9 Plus
- **RPDM72027** WM/HS Content Course: Introduction to 11-8/9 Plus

**SECONDARY SCIENCE, Fall 2007 Course Offerings**

- **RPSC72000** AP World History Workshops: Workshop 1
- **RPSC72001** AP World History Workshops: Workshop 2
- **RPSC72002** AP World History Workshops: Workshop 3
- **RPSC72003** AP World History Workshops: Workshop 4
- **RPSC72004** AP World History Workshops: Workshop 5
- **RPSC72010** AP US History Workshops: Workshop 1
- **RPSC72011** AP US History Workshops: Workshop 2
- **RPSC72012** AP US History Workshops: Workshop 3
- **RPSC72013** AP US History Workshops: Workshop 4
- **RPSC72014** AP US History Workshops: Workshop 5
- **RPSC72020** AP World History Workshops: Workshop 1
- **RPSC72021** AP World History Workshops: Workshop 2
- **RPSC72022** AP World History Workshops: Workshop 3
- **RPSC72023** AP World History Workshops: Workshop 4
- **RPSC72024** AP World History Workshops: Workshop 5

**Summer 2007** — 19
The Regional Professional Development Program (RPDP) is holding its annual “Summer Institute.” Each Department at RPDP will be hosting a week-long institute for teachers at all grade levels. Hundreds of teachers will be taking advantage of this great professional development opportunity. If you have any questions regarding the institute, feel free to call the appropriate contact person listed below. Most of the registrations for each of the departments will occur via Pathlore and will begin at different times.

Register Here: http://pathlore.ccsd.net/stc/student/psciis.dll?mainmenu=student