Pre and Post Conference Questions

Misconceptions with Guided Practice

Guided Practice
Group Practice
Independent Practice

Strategies for Teaching ELL Students

Professional Development Offerings
No matter what methodology that is being used in a classroom (lecture, direct instruction, collaborative learning, discussion… etc.), teachers are responsible for helping students process information through guided practice. Guided practice is a technique that teachers use to take students from being dependent to being completely independent of a teacher’s assistance. Using guided practice at different times throughout the lesson and by using different strategies allows students to gain the confidence they need to complete work independently.

There is a misconception among teachers that walking around a room and monitoring students is a form of guided practice. That is the furthest thing from the truth and this type of behavior better models independent practice. Independent practice involves a teacher giving students a task to complete and monitoring their progress while answering “limited” or NO questions from the students. During independent practice, if a teacher is constantly answering questions, then the teacher should stop and go back to guided practice with the students.

Guided practice and group activities help build a conceptual understanding with students through inquiry, investigation, discovery, lab, or problem solving activities. Among other useful information, this issue of Shop TALK will give teachers and administrators strategies and methods for successfully engaging students in guided practice and inquiry based lessons. Guided and group practice better helps prepare students for independent practice.

NOTE: Independent practice is separate from homework.
Components of an Effective Lesson

Introduction
Daily Review
Daily Objective

Concept Development
Concept Linkage in Discipline
Concept Linkage Out of Discipline

Guided Practice
Group Practice
Independent Practice

Long-term Memory Review
Closure
Homework Assignment

Teacher Expectancies

Over Teach and Over Learn
Student/Teacher Relationships
Use Simple Examples

Assessment
Student Note-taking
Vocabulary is Stressed

Reading and Writing
Facts and Procedures
Technology Implementation

Problem Solving
Memory Aids
Questioning Strategies

 Springs 2007 — Shop TALK

The Southern Nevada Regional Professional Development Program

Spring 2007 Vol. 2, No. 2

Table of Contents

RPDP Teams

Administrative
Enhance the dialogue in pre and post observation conferences. Use authentic questioning as the basis for productive discourse about student learning.

Elementary Literacy
Steps and strategies to implement guided reading and make students successful independent readers.

Elementary Math
Describing guided, independent, and group practice in the elementary math classroom.

Elementary Science
Analyzing the learning environment and developing ways to make science appealing to all students in the classroom.

Technology
Knowing the structure of high stakes tests and places to find resources.

Highlights

- Administrative Highlights
- Teacher Highlights

Secondary Math
Misconceptions about guided practice and how to recognize the use of guided practice.

Secondary Literacy
Ways to place students into groups and beginning strategies for using collaborative pairs.

Implementing the English Language Arts Standards by each strand.

Secondary Science
Working with students to pose scientific questions, and making meaningful observations to effectively use the inquiry teaching continuum.

Strategies to help English Language Learners in the science classroom and techniques to allow for more successful learning of all students.

Shop TALK

The Southern Nevada Regional Professional Development Program

Spring 2007 Vol. 2, No. 2

Table of Contents

RPDP Teams

Administrative
Enhance the dialogue in pre and post observation conferences. Use authentic questioning as the basis for productive discourse about student learning.

Elementary Literacy
Steps and strategies to implement guided reading and make students successful independent readers.

Elementary Math
Describing guided, independent, and group practice in the elementary math classroom.

Elementary Science
Analyzing the learning environment and developing ways to make science appealing to all students in the classroom.

Technology
Knowing the structure of high stakes tests and places to find resources.

Highlights

- Administrative Highlights
- Teacher Highlights

Secondary Math
Misconceptions about guided practice and how to recognize the use of guided practice.

Secondary Literacy
Ways to place students into groups and beginning strategies for using collaborative pairs.

Implementing the English Language Arts Standards by each strand.

Secondary Science
Working with students to pose scientific questions, and making meaningful observations to effectively use the inquiry teaching continuum.

Strategies to help English Language Learners in the science classroom and techniques to allow for more successful learning of all students.

Highlights

- Administrative Highlights
- Teacher Highlights

Secondary Math
Misconceptions about guided practice and how to recognize the use of guided practice.

Secondary Literacy
Ways to place students into groups and beginning strategies for using collaborative pairs.

Implementing the English Language Arts Standards by each strand.

Secondary Science
Working with students to pose scientific questions, and making meaningful observations to effectively use the inquiry teaching continuum.

Strategies to help English Language Learners in the science classroom and techniques to allow for more successful learning of all students.

Highlights

- Administrative Highlights
- Teacher Highlights

Secondary Math
Misconceptions about guided practice and how to recognize the use of guided practice.

Secondary Literacy
Ways to place students into groups and beginning strategies for using collaborative pairs.

Implementing the English Language Arts Standards by each strand.

Secondary Science
Working with students to pose scientific questions, and making meaningful observations to effectively use the inquiry teaching continuum.

Strategies to help English Language Learners in the science classroom and techniques to allow for more successful learning of all students.
Administrative

Let the conferences begin...

The fresh ink on the “Yes, I have read the handbook” form is the start of the evaluation process for most teachers in the Clark County School District (CCSD). Instructing teachers in the evaluative process at the start of the school year has historically included formative outlines and substantive procedures that are signed, sealed, and delivered with exotic fanfare and promises of extraordinary accomplishments. Typically, the logistics of preparing the teachers for conferences and evaluations have been well planned and well executed.

However, once the school year is underway the day to day management begins to infringe on all the good intentions of the increased visibility in the classroom. Interruptions are now the norm and every day brings vigorous increases in responsibilities and workload. The promises to get in the classroom more often are now difficult to keep. The conflict between day to day management and the need to spend quality time with teachers in conferences and observations begins to grow exponentially.

One way to maximize the substance of supervision is by structuring the teacher’s pre and post conferences and aligning them with the observation experience. The conferences are the vital link between the teacher and the supervisor. This educational endeavor should concentrate on what has been observed and what happens next in the classroom. The key components are the questioning strategies and the dialogue between the instructional leader and the teacher.

The quality of supervision can be discerned through a well planned observation structure and quality supervisory techniques. To enhance the dialogue in pre and post observation conferences, accurate and authentic questioning becomes the basis for productive discourse about student learning. Teachers should be involved and should know what questions will be asked. Allowing teachers to be part of the process strengthens relationships and forms collegial bonds.

The following are some questions that can be asked during conferences:

1. How did you approach this lesson?
2. What were the students’ strengths and weaknesses?
3. How did you address those weaknesses?
4. What are your plans for the next lesson?
5. How do you plan to assess student understanding?

The Direct Instructional Assistance Line (DIAL) is a teacher helpline provided by the Southern Nevada Regional Professional Development Program (RPDP) and is meant to provide assistance on content, methodologies, and strategies to help teachers increase student achievement. Teachers in any subject can call the toll free number and receive assistance on ways to teach certain concepts to students.

Direct Instructional Assistance Line

DIAL

1.866.920.RPDP (7737)

GET HELP ON WAYS TO TEACH CONTENT

“DIAL” is a teacher helpline provided by the Southern Nevada Regional Professional Development Program (RPDP) and is meant to provide teachers with assistance on content, methodologies, and strategies that will help teachers increase student achievement. Teachers in any subject can call the toll free number and receive help on ways to teach certain concepts to students.

Southern Nevada Regional Professional Development Program

515 W. Cheyenne Ave., North Las Vegas, NV 89030
Phone 702-799-3835 (fax) 702-799-3821
Questions: Pre and Post Conferences

1. Reflect on the purpose and the preparation of the lesson.
2. What data were used as a basis for the lesson?
3. Discuss your insights into what happened in the classroom during the visitation.
4. What effect did this lesson have on student learning?
5. What instructional strategies were used?
6. How can you document their effectiveness?
7. What worked well and what did not work?
8. What steps will be taken to enhance the elements that worked and to improve those that did not work?
9. Did the students behave in the manner you expected? If not, why not? If they did, what affected this behavior?
10. How were reading and writing included in the lesson?
11. How will the content be renewed, reviewed, and remembered?
12. Which CEL and TE were evident in the lesson today?
13. Explain what you would do differently?

Constructive conferences are the basis for positive relationship building which will ensure positive outcomes for students. Teacher conferences are critical to ensuring student achievement goals are accomplished. The conferences with teachers before the formal observations take place are vital to set the stage and review expectations. Post-conferences, which should take place as soon as possible after the formal observation, are a valuable tool in the quest for higher gains in student achievement. Administrators and teachers should be partners in healthy dialogues about what students should know and be able to do.

Written By: Pam Hicks
Administrative Trainer, RPDP
Guided Reading

Guided reading is the heart of a balanced literacy program. It is an instructional approach that teachers can use to guide students to talk, read, think, and question their way purposely through a text in a small group setting. It also provides teachers the opportunity to evaluate a child’s reading in action. The ultimate goal of guided reading is for students to become successful independent readers.

The teacher’s responsibilities begin long before the guided reading lesson. It is essential to assess all students to determine their instructional reading levels. Once those are established, the teacher can then arrange the students in small groups based upon ability levels.

A guided reading lesson generally begins with an introduction to the text. This is the teacher’s opportunity to tap into their student’s prior knowledge and ‘hook’ them into the story. Additionally, allowing the students to browse through the text is a great way to prepare them for any new challenges they may meet as they read. After the students have been introduced to the text, they should have the opportunity to read the text independently. Emergent and early readers may ‘whisper’ read, while more fluent readers are encouraged to read silently. This allows the teacher to do a running record or other forms of progress monitoring.

After the student has read the text independently, the teacher may invite the group to discuss the story and any skills and strategies they used to comprehend the text. This is a critical component of the lesson because it allows the students to reflect on their reading with guidance from the teacher and gives them the opportunity to discuss what was easy and/or what was challenging and to process their comprehension.

Guided reading lessons should be systematic, explicit, and consistent. It is an empowering approach that is appropriate for all levels of readers, from primary level readers to the most capable intermediate readers. Grouping should be flexible and should focus on the ever-changing needs of the students.

Written By: Shanalee Cannon
Elementary Literacy, RPDP

Resources:
Guided Reading by Irene Fountas & Gay SuPinnell Heinemann, 1996
Guiding the Readers and Writer Grades 3-6 by Irene Fountas & Gay Su Pinnell, Heinemann, 2001
On Solid Ground by Sharon Taberski, Heinemann, 2000
Guided Reading & Literacy Centers by Swartz Shook, & Klein, Dominie Press, 2003

Steps to implementing guided reading

1. Find children’s instructional reading level
2. Group learners for guided reading experiences
3. Select texts that support the skills and strategies students need, based upon assessment instruments that guide instruction
4. Implement the guided reading session
5. Establish procedures for ongoing monitoring and assessment to track children’s progress

Strategies Readers Use

Sustaining Reading
• Predicting
• Solving Words
• Monitoring/Correcting
• Gathering
• Searching
• Maintaining Fluency
• Adjusting

Expanding Meaning
• Making Connections
• Inferring
• Summarizing
• Synthesizing
• Analyzing
• Critiquing

When You Are Stuck…
• Point to the words
• Check the picture
• Get your mouth ready
• Slide to the end of the word
• Reread
• Think, “What makes sense?”
• Find words that look like this?
• Look for chunks you know
• Self-correct

Guided Reading is…
• One component of the reading program
• Based on multiple assessments
• Flexible grouping
• Small groups (4-6)
• Multiple copies of the same instructional text
• Skills and strategies based on needs
• Differentiated instruction

Guided reading is NOT…
• One assessment once a year
• Groups that never change
• One text for the whole class
• Same skills and strategies for every student
• Round robin reading
What Does “Practice” Look Like in the Classroom?

Teachers should be embedding practice in all lessons as a natural follow-up to presenting new information, or reviewing concepts. However, practice can look very different depending on the intent and where the students are in their understanding of what is being taught. Practice is the idea that the needs of the student are in a continuum, starting with direct instruction, moving toward independence. Different practice types vary with a students’ understanding including group, guided, and independent practice types.

Group practice has most commonly been associated with the grouping of students. It could be whole group, small group, or even pairing. Associated labels are cooperative learning, collaborative learning, and teacher modeling. The teacher most commonly is employing direct teaching, modeling or facilitating. The key points are that the teacher is directly involved, and the students need support from the teacher and/or classmates to construct knowledge.

Guided practice is not so clearly defined. The definition of “guide” is to lead or direct another. On the surface, guided practice implies that the teacher is leading or directing the students in their practice. However, it is not clear how much the teacher is leading or directing. Supporting or facilitating is more accurate in describing guided practice. When utilizing guided practice, it is usually understood that the students are at a place in their learning that they can work at a semi-independent level, yet they may still need some clarification from their teacher and/or classmates.

Independent practice is most commonly used when students no longer need support from teachers or classmates. They can demonstrate their understanding of concepts with accuracy and ease. Ultimately, it is this outcome that teachers want to see. Only after the teacher is confident that the student can successfully practice on their own, should independent practice be implemented. Note, that “homework” has not been mentioned in terms of independent practice, though many teachers label it as such. Independent practice is an opportunity for students to empower themselves and be more reflective while the teacher observes from a distance.

Meaningful practice includes, among other things, incorporating manipulatives to give hands-on experiences, creating lessons that invoke rich, in-depth learning experiences for students; allowing opportunities for students to construct their own knowledge via exploration, communication, and self-reflection, and affirming that what they are doing is accurate.

Written By: Dana Martin
Elementary Math, RPDP

Elementary Math NEWS TALK!

The GAP Resource is now available!

The “Guide for Aligning Mathematics Programs,” or GAP Resource as it is commonly referred, is now available on www.rpdp.net. Additional copies/discs have been sent to all elementary schools.

The GAP Resource:
• Aligns Saxon, Scott Foresman, and Investigations to the Benchmarks
• Helps with guides and pacing
• Identifies gaps according to alignment, and fills those gaps with instructional strategies and resources

Thanks to the following who were involved with the creation of GAP:

Writing Teams: Leisa Anderson, Denise Ashion, Barbara Bashor; Ivy Bialorucki, Tonya Bostic, Susanne Brush, Mary Campbell, Elizabeth Chandler, Barbara Chambers, Nicole Cortney, Priscilla Demetros, Jessica Grant, Matt Henne, Mona Hensel, Deborah Hodler, Dan Kubeitz, Maria Mroz, Kristina Nelson, Brenda Pearson, Rick Perry, Beth Prior, Jennifer Rowland, Carla Scott, Wendy Shirey, Larry Strannix, Julie Zelenak

Editing Team: Michelle Adams, Barbara Bashor, Susanne Brush, Tonya Bostic, Barbara Chambers, Mona Hensel, Brenda Pearson, Beth Prior, Kristian Ryerson, Carla Scott

Technical Support: Jeff Bostic, Derek Fialkiewicz, Glenn Krieger

The GAP Resource is now available!
Science is for ALL Students

According to the Executive Summary, Taking Science to School: Learning Science in K-8, Children’s experience varies with their cultural, linguistic, and economic background. Such differences mean that students arrive in the classroom with varying levels of exposure to science and varying degrees of comfort with the norms of scientific practice. These differences require teachers’ sensitivity to cultural and other background differences and their willingness and skill to adjust instruction in light of these differences. Adjusting for variation in students’ background and experience does not mean dumbing down curriculum or instruction. All children bring basic reasoning skills, personal knowledge of the natural world, and curiosity, which can be built on to achieve proficiency in science.

…Classroom level factors related to instruction, such as teachers’ expectations or strategies for grouping students, play a role in producing inequitable learning opportunities for economically disadvantaged and minority children.

So what factors contribute to making science equitable for all students? Some key points are the classroom learning environment, high expectations for all students, connections to real life situations, and strategies that meet the needs of all student learners.

Learning Environment

A learning environment that is inviting, establishes a sense of community, embodies a risk-free atmosphere, and supports the needs of diverse student populations is important. Using tables or desks grouped together encourage discussion, team work and model how scientists work together. A gathering area for whole group discussion, lesson closure, or small group interactions allows students a forum for scientific discourse. An area for materials with labeled baskets, trays, compartments, scientific tools, and display areas for projects sets the stage for organization and orderliness. Maintaining adequate space for students’ in wheelchairs allows them to comfortably move about the science classroom. Wall space to display content area vocabulary and posters of female and minority scientists are also helpful to maintain a learning environment that supports science learning.

Valuing diversity in the classroom community can be demonstrated by having mixed ability groups, allowing second language learners to speak their native language in small group discussions, and integrating examples and materials that promote women and minorities in science. A classroom community should be one that dispels the myth that science is only for white males and encourages and embraces females, second language learners, and resource students to do science.

Research indicates that low expectations for the achievement of females and students of color in mathematics and science have a significant impact on their academic success (Eccles et al., 1983; Shephardson & Pizzini, 1992).

Even though low expectations are unacceptable they come into play when females and minorities are studying science. Teachers tend to ask higher level questions when addressing males while asking more literal, lower level questions to girls. Asking higher-order, open ended questions to both males and females are a way to reduce or eliminate inequities in science. Research also indicates that males are called on more often and are given more time to answer questions than females. Many times behavior of minority students will be commented on rather than how they are doing or what they know in science.

Girls and minority students usually don’t see the connections of science to their everyday life or cultures. When students see the authentic connections between what they are doing in science and what is happening around them, they tend to be more engaged in what they are doing.

Science should be inviting to all students. Providing hands-on experiences in science captures the interest of many of our diverse learners. Second language learners and resource students who have difficulty with reading and with language find that hands-on experiences level the playing field. These hands-on experiences help provide background knowledge for students who have had little exposure to particular science experiences.

Allow students exploration time. Set up stations to explore scientific tools and equipment. For example, tuning forks and stethoscopes may be new to many students. Giving students time to test out how they work and what they can do helps students become familiar with them before they actually use them in their science experiences.

Within small groups second language students can have the option to speak in their native language. Consider having some all girl collaborative groups. Many times girls tend to step back and let the boys in their groups interact with materials while they watch. Also rotate jobs within a group so that everyone has a chance to actively engage with materials.

Using a variety of strategies provides students multiple opportunities to connect with materials. Using icons, photographs, labeling, or drawings can help second language students connect science content.

In order to build confidence in science, foster questioning and exploring to help reduce anxiety especially among girls. Display active encouragement on the importance of science.
Use a variety of teaching techniques to meet the needs of all learning styles and strengths. Infuse reading, writing, charts, posters, technology and role-playing into one’s repertoire. Provide a variety of assessment formats that demonstrate what science content students have learned. Allow students to present information in a variety of ways, not only in traditional test formats but also in PowerPoint presentations, models, summaries, or oral interviews. These capitalize on students’ strengths and allow them to demonstrate what they have learned.

As you step back and reflect on classroom practices ask yourself – Am I providing a science classroom that affords all students the opportunity to learn science?

The greatest student success occurs with different instructional strategies addressing the learning needs of all students. Students must be provided equal opportunity and access in science classes, while receiving the support necessary to be successful in those programs (EDThought, pg. 2).

Written By: AnnaMaria Behuniak
Elementary Science, RPDP

References:


Northwest Regional Educational Laboratory (1997). Science and mathematics for all students it’s just good teaching. Portland, OR.

Resources:


Elementary Science NEWS TALK!


This two day conference which offers both hands-on and demonstration sessions affords participants the opportunities to learn from experienced educators, network with other educators, and acquire the latest news on TI technology. Exhibitors from a variety of companies will also be on hand.

On Friday, January 26 registration and check-in will be from 3:30 pm – 5:00 pm, SUU Credit orientation will be from 4:30 pm – 5:00 pm, and sessions will be from 5:00 pm – 9:00 pm. Sessions will be from 7:30 am – 6:00 pm on Saturday, January 27. One SUU graduate credit will be available with full attendance at the conference and assignment completion. The cost of the credit will be $15.00. Payment will be made at the conference.

Pre-registration and speaker proposal forms can be found at www.snvmath.org/conference. Conference fees are $50.00 if received prior to January 12, 2007 (via website) and $60.00 after January 12 (please register on site). The fee includes a one year membership in either the Southern Nevada Mathematics Council or the Nevada State Science Teachers Association (participant choice). Please note: All speakers will have their registration fee waived for the conference.
When one looks at the published testing calendars, thoughts immediately turn to how in the world teachers will be able to fit in all of their own content, while expected to give up precious days throughout the school year for testing. The good news is that there are a myriad of resources available to help teachers prepare their students for testing. Teachers should use the web to teach kids how to think rapidly, analyze, and assess test questions which all leads to increased efficiency and performance on tests by students.

Three important aspects for teachers to know about tests include the format of the test, the length of the test, and which standards are being tested. Many tests are formatted in different ways and the following are important questions to ask when teachers prepare student for tests:

- Is the test all multiple choice, or are there true-false questions, short answer questions, essay questions?
- Are there specific requirements for the essay questions, are the essay questions DBQ’s (document based questions) or are they five paragraph essays?
- How long is the test and the length of the individual tests within?
- Are the tests timed, are students allowed to ask for extra time, are students allowed to return to previous sections if they finish early?
- Which standards are represented on the test?

All teachers, regardless of content area, should know what standards and objectives are being tested. Even if the tests are only testing math and reading, teachers who are in different content areas should still practice those objectives with their students. It is quite easy to incorporate math and reading skills into other content area lessons. Not only should teachers be familiar with what is being tested, they should also know how the tests will be used. (See Online Resources at the end of this article for state and local testing web sites).

Teachers need to know how the test results are used and analyzed. For example, testing determines whether or not a school meets AYP (Adequate Yearly Progress). Some results that determine if a school will or will not meet AYP status rely on items as simple as percentage of students tested. Teachers can help defray student absenteeism on test days in a variety of ways. Sometimes, just getting the student to the test is the biggest hurdle. Many states use data management software to upload, store, compare, and analyze student testing data. The more powerful and easy to use the software is, the higher the increase in student achievement. If the data management software is clunky and difficult to use, teachers will shy away from pulling meaningful data from the program. Also, if adequate training on the software is not completed, the software program becomes an albatross, rather than a tool. Interpreting and analyzing real-time test data empowers teachers to address deficiencies, either in teaching or in learning, almost immediately. (See Online Resources to learn more about the Clark County data management system, IDMS)

Additionally, a teacher can pull data from an entire class or group of students to see where groups of students scored lower on specific standards. If a large percentage of students failed a particular question, the teacher should take a look at how they are teaching that particular objective. Test taking skills can also level the playing field for students. One effective skill is how to best utilize time while taking the test. Another great test taking skill is teaching kids how to effectively eliminate distracters and wrong answers quickly. How to ease test taking anxiety and physical factors such as getting a good night’s rest and eating properly can positively affect test results as well. (See Online Resources for test taking skills web sites)

Although testing is a tedious and necessary part of education, teachers can improve student achievement by preparing themselves to prepare their students. By knowing the format, length, and content of the test, teachers can impart that information to their students. Examining how the test results are used and analyzing these results allow teachers to focus in on weak curricula areas and individualize their students’ educational experience in their classroom. Once teachers embrace the test, they can maximize their student’s ability to take the test by addressing specific standards and imparting good test taking skills to their students. Testing does not have to be a high-stress situation when the teacher, the school, the parent, technology, and the student are all involved.

Written By: Brandy Kay Mills
Technology, RPDP

Online Resources
www.solalgebrareview.com Free Algebra Diagnostics
Online Review
www.measuredprogress.org/Assessments/GeneralEducation/Nevada/Nevada.html Measured Progress Nevada
http://www.measuredprogress.org/Assessments/SpecialEducation/Nevada.html Portfolio Folders, Audios, Images, etc.
http://www.nevadapraportcard.com/ Charts and graphs - yearly comparisons – achievement levels; AYP for all tests
http://www.testtakingtips.com/ Tips taking the actual tests, for studying for tests, for reducing test taking anxiety, etc.
http://www.studygs.net/ Preparing, Learning, Studying, Classroom Participation, Learning with Others, etc.
In this issue of Shop TALK, RPDP would like to recognize the following individuals for their outstanding work in education.

**SHEILA SIINO**

Meet Sheila Siino, David M. Cox ES GATE teacher. Whether delving into owl pellets with teachers, using a GPS, or taking her GATE students on hands-on science field trips, Sheila’s enthusiasm and passion for science is evident. Sheila has been a part-time instructor with RPDP for two years. She currently teaches the Science in the Fourth Grade Classroom sessions. Sheila also teaches Using the Global Positioning System in the Classroom and Using the Whitney Mesa as an Outdoor Classroom through PDE office. Sheila also serves in the position of President-Elect on the Southern Nevada Science Teachers Association (SNSTA) Board.

**SUZZANNE HOSSLER**

Suzanne, a proud product of CCSD and UNLV, has been teaching math for 16 years. She is currently at Fertitta MS where she is the Math Department Chairperson. Suzanne has conducted workshops for RPDP and CPD in many areas including calculators, KRYPTO, assessment, problem solving, and many more. Suzanne’s crowning moment came this past year with the winning of the Nevada Presidential Award for Mathematics. Her classroom mantra includes connections to prior learning and overteaching, and she continually stresses the why of mathematics. Suzanne hopes to become board certified and pursue her Phd in the near future.

**WENDY SHIREY**

Wendy Shirey teaches fifth grade at Frias Elementary School. When planning, Wendy follows the benchmarks and designs her lessons according to the Components of an Effective Math Lesson. A typical day consists of a quick review of previously learned skills followed by whole group instruction on new skills that build on the review. After whole group instruction, she works with guided math groups for reinforcement.

Wendy also worked on creating the Guide for Aligning Mathematics Programs (GAP Resource) which is being used by teachers across the state.

**KARA LYNNE GREGORY-BELL**

Kara Gregory has been touching the lives of young people for 15 years. For the last 5 years, she has been teaching 8th grade English at J.D. Smith Middle School. We would like to highlight Ms. Gregory because she epitomizes the “My Kid Standard” as described in the Teacher Expectancies. With great integrity and never ending hard work, Kara maintains a student centered classroom, sensitive to the needs of all her students, while balancing the daily demands of grading papers and keeping up with district requirements. The abundance of student projects that crowd Ms. Gregory’s classroom walls are a testament to her dedication and her belief in the potential of her students. “My students don’t usually see their own potential. I try to show them how intelligent they are and what possibilities life has to offer if they just reach for their dreams and never give up.” Thank you Kara for giving so selflessly!

**CHARLOTTE SEEHAFAER**

Charlotte has been teaching in the Clark County School District for 10 years. Currently, she is in her third year as the ECS at Sue Morrow ES and Lorna Kesterson ES. Charlotte tries to help the teachers at her schools as much as possible. She responds quickly to issues that arise, provides training for the different computer programs that are at the schools, and works one-on-one with the teachers to help solve their computer-related problems. Charlotte is working on her Computer Applications endorsement, and is hoping to complete her Master’s + 32 this year.

**BRET SIBLEY**

This is Bret’s second year as a full-time regional trainer. Prior to joining RPDP Bret taught Earth Science and Physics at Green Valley HS for 12 years. In 2005, Bret won Nevada’s Presidential Award for Secondary Science. This award recognized Bret’s outstanding ability as a classroom teacher and as someone who is dedicated to providing the students with the best education experience possible. Bret now applies his outstanding work ethic and organizational skills to providing high-quality professional development to the teachers of Southern Nevada.

**RPDP’S TEACHERS HIGHLIGHTS**
Of all the Teacher Expectancies, guided practice is one of the most underused and least understood. If one were to do a survey of mathematics teachers and ask if they do guided practice, a clear majority would reply in the affirmative. Yet, what many of us consider to be guided practice is not guided at all and is often ineffective practice, at that. So, before we examine what guided practice is, let us clarify what guided practice is not.

Imagine that you have done the majority of your lesson. You have taught a mathematical procedure and have provided several examples for the students. Of course, all of them have diligently recorded what you have presented in their notes. “Now, class,” you tell them, “it’s your turn. Begin on the assignment, one through thirty-one, the odd numbered exercises.” Papers shuffle, pencils tap, heads scratch, and you patrol the room helping students if they run into difficulty. Unfortunately, what you have engaged the students in is not guided practice.

Stunned? You and thousands of other math teachers, this author included. I was shocked to learn that I had engaged the students in independent practice, not guided practice. I was not guiding anyone. My mere “patrolling” of the room and “putting out fires” was not guided practice.

So, what is guided practice? Guided practice is a transitional period in a lesson where students move from being dependent on the teacher for doing a procedure, i.e. examples, to independent, where they can handle exercises and problems on their own. It can take several forms, and those presented here are not an exhaustive list.

Let’s say you just finished teaching a lesson on finding lengths of unknown sides in similar triangles. You have provided several examples that students have copied into their notes. Now, it is time for guided practice. They are not ready for independent practice yet because you don’t know if they know what they’re doing.

Present them with a single exercise, one that is fairly simple and straightforward with “nice” numbers. For example:

Triangle ABC is similar to triangle XYZ. Find the length of XY.

Now, tell the kids that you want them to only identify the corresponding sides of the triangles and stop. Do not do the whole exercise. As they are doing this, you can walk about the room and spot check their work. You may not be able to check everyone’s, but you can get to some. Remind them to look at the examples you provided. After about 30–40 seconds, review with the whole class.

Why not have them do the whole exercise? Because it makes no sense to have them work for two minutes, get an incorrect answer, and find out that they couldn’t even name the corresponding sides from the beginning. You may even need to start a second exercise with them or even a third before they are proficient with this step. It depends on the class.

Once you are convinced that all (or nearly all) of the students have this step down, the next step will be to have them write the proportion and substitute the values so they can find the unknown side. But have them stop once they write the proportion.

\[
\frac{AB}{XY} = \frac{BC}{YZ} \quad \frac{8}{XY} = \frac{4}{6}
\]

Don’t have them solve it. Look over students’ shoulders. Give them only 30–40 seconds to set it up. Return to the board or overhead and go over this step en masse. You may have to do this step with two or three different exercises. Make sure all (or nearly all) can get the proportion set up correctly before continuing.

Once they can set up the proportion, now have them solve it.

\[
\frac{8}{XY} = \frac{4}{6} \quad 8 \cdot 6 = 4 \cdot XY \quad 48 = 4 \cdot XY \quad 12 = XY
\]

Tour the room checking student work. Give only 30–45 seconds to do this step, then go over the step with the whole class.

After all (or nearly all) students have shown mastery of this final step, have them do another exercise from start to finish, still keeping numbers and situations fairly simple. Give 90–120 seconds to do the work, monitoring students as you move around. Then work the problem with the whole class.

If the independent practice you will assign has some exercises with “trickier” numbers (fractions or variable expressions) or more complicated situations (different triangle orientations), then you will have to extend guided practice. Give one for the students to do and check their progress, perhaps having
them stop momentarily after a thorny step. Go over it with the whole-class at the end.

Are you seeing the big picture? Not every student will “get it” after two or three examples done exclusively by you. They have to practice themselves, with your guidance throughout the process, with stops to check for understanding along the way.

Let’s take some questions.

“But, what’s wrong with giving them an assignment right after the lesson and helping individual students?”

Well, there’s nothing wrong with it as long as every kid, or nearly every kid, knows what he’s doing. But, how many times have you given 1–31 odd as the assignment, and you end up helping twenty, ten, or even just five kids get started on exercise number 1? If that happens, then you didn’t do enough guided practice. The most appropriate thing would be to go back and do more exercises with the whole class. You should have done that in the first place by doing guided practice.

“OK, but I give them three or four exercises to practice, then we go over them whole-class before the assignment.”

Better, but how many kids will do two, three, or four of those exercises completely wrong? Now, five or more minutes have been squandered doing imperfect practice. You’re not going to get that time back. If you gave a cab driver directions for the 10-minute ride to your house, would you wait 10 minutes until you checked to see if he was going in the right direction?

“You say ‘nearly all’ kids should have it before going on. Why not all?”

Because it’s impractical—and it’s unfair. There may be kids that need more help and students that may take longer to “get it.” If you were to do guided practice until every student made progress, you may never get to individual practice. That’s unfair to those students who are ready to move on. If, after several guided practice questions, 19 of 20 students are ready for individual practice, they can proceed with success while you can devote more time to the one in twenty who needs more help.

“Is the example cited above the only way to do guided practice?”

No. Guided practice can take other forms than the ones presented above. When teaching completing the square in Algebra 2, you might work an exercise almost completely through and then have students do just the last step. In the next guided practice exercise, students would do the last two steps, and so on. Remember, the first few examples should be simple. Once students have a handle on the procedure, you can give exercises with more complexity.

“How long should guided practice take?”

As long as it needs to. You may end up spending only 5 minutes on guided practice at the end of a lesson. Sometimes, you may need 15 minutes or more. The key is to move students from the lesson (complete dependence on you) to independent practice (complete reliance on themselves) in a manner that gives them success while you check for progress.

Here are some closing thoughts to bear in mind about guided practice:

• Guided practice should begin with “simple” exercises and move to the more complex.
• Guided practice should be incremental if the exercises involve several steps.
• Guided practice should be time-efficient, not allowing students to spend too much time on one step or exercise.
• Guided practice should include frequent checks for understanding before proceeding.
• Proceed through guided practice when a sufficient number of students are proficient with a step or exercise.
• If students are making the same mistakes at the same step, you didn’t do enough guided practice or didn’t check for understanding.
• If students are having trouble getting started on independent practice, you didn’t do enough guided practice.

Written by: David Thiel
Secondary Math, RPDP

Correction: In the Fall 2006 issue of Shop TALK, the article below was written by: Brian K. Gauthier
Engineering Technology
Advanced Technologies Academy HS
The brain develops better in concert with others…. [It] has evolved to use language as our primary means for communication” (Eric Jensen, 2004). This may partly explain why groups, teams, and cooperative learning benefit our understanding and application of new concepts—they require us to communicate with each other. Through this natural process, synergy is created and learning is enhanced. Allowing students to move and talk while learning is effective because it is multisensory, uses active participation, is emotionally stimulating, and encourages socialization.

Even though it has been established that students often learn best when working in groups, how you group your learners is essential. A common practice is to create homogenous groups, grouping students by ability levels. The common assumption is that students benefit from working with learners with similar strengths and weaknesses. There is ample evidence, however, that ability groups do not benefit students as much as heterogeneous groups. Studies show the following:

- Low-ability learners actually perform worse when they are placed in homogeneous groupings.
- Average-ability learners benefit most from homogeneous groups.
- High-ability learners have limited growth when they work together. (Lou et al., 1996)

When students are grouped by ability, teachers tend to treat these groups differently depending on their expectations. Struggling students tend to be assigned uninteresting and simplistic reading material, are asked low-level questions, and are corrected and interrupted more often. It is not only the achievement levels that suffer from homogeneous groups but also the students’ psychological well-being. Students in the low-ability groups often feel excluded and suffer from low self-esteem.

The following diagram is an easy way to organize your students, so at a glance you can place students in appropriate groups. For a class of forty, you would need to create two of these wheels. Using the wheel, students can be grouped in pairs, threes or fours.

Cooperative learning requires expertise and planning to implement. It might be a good idea to start grouping activities using collaborative pairs before attempting larger groups. Collaborative pairs provide the opportunity for students to communicate with one another without the management issues that often arise with larger groups. Three excellent beginning strategies for collaborative pairs are Numbered Heads, Think-Pair-Share and Pairs Checking.

- **Numbered Heads**: Place students in pairs (only one group of three, if needed). Give each student a number. Call on the pairs by number asking them to perform any of the following activities: Summarize what you heard; clarify and explain; predict what is coming next; create or answer a question.

- **Think-Pair-Share**: At any point in the lesson pose a question or problem and have students pair up and share their thoughts. This should be a timed activity so as not to use up too much of class time. A variation is to have students write for 1 or 2 minutes, pair up and share what they wrote. Like Number Heads, students can be asked to summarize, clarify, explain, predict and create another question.

- **Pairs Checking**: Have each student do their own work and then circle even (or odd) numbered items. When they get to a circled item, they must stop and check their answer with their partner’s answer. If they disagree, they must discuss and justify their answers until they agree.

Reading comprehension is greatly increased when students work together as “Reading Buddies.” Buddy reading is an invaluable tool to use with less able readers. The more capable reader reads aloud, and the other who is less competent follows along in the text. It is an enjoyable learning experience for the more able reader and models fluency for the less able reader. Even students who are unable to read the material may still be able to discuss and appreciate the content. Buddy Reading can be used in a more reciprocal manner, as well. Following are a few ways to use Buddy Reading:

- Have pairs take turns reading a section of the text aloud to each other. While student A is reading, student B verbalizes his/her “thinking about the text” using the Think Aloud reading strategy (see Literacy Connect #1 at www.rpdn.net for the Think Aloud). At the end of each paragraph, students collaborate to write a one sentence summary of what they read. Students should alternate reading and “thinking” roles at the end of each
Although the state plans to re-evaluate and streamline next year by reducing the eleven standards to six, the reading, writing and communication strands will more than likely be well represented.

**The Reading Strand:**
If you are displaying the English Language Arts Standards in your classroom, you may consider color coding the standards to group the overall strand for each of the standards. For example, all standards on yellow paper might represent reading concepts.

1.0 Students know and use word analysis skills and strategies to comprehend new words encountered in text.

Standard one can be considered the “Word Knowledge” standard. Objectives that meet this standard might include the teaching of context clues, Greek and Latin roots, or various types of literal and figurative language.

2.0: Students use reading process skills and strategies to build comprehension.

Students’ ability to draw on background knowledge while reading, make predictions, draw conclusions and make inferences are just a few of the embedded objectives within standard two.

3.0: Students read to comprehend, interpret, and evaluate literature from a variety of authors, cultures, and times.

Understanding literature (fictional text) is the focus of standard three. While students must use the reading process while mastering this standard, they must also have a strong understanding of the structure of fictional writing.

4.0: Students read to comprehend, interpret, and evaluate informational texts for specific purposes.

Standard four also utilizes the reading process as described in standard two, but gives a deeper look into various types of non-fiction writing. Locating information, identifying main idea, and summarizing an author’s ideas are just a few objectives that are incorporated within this standard.

**The Writing Strand:**

Standards five through seven focus on the many skills found in the teaching of writing. Color coding these standards in blue, for example, can be beneficial in recognizing the skills involved in the teaching of writing.

5.0: Students write a variety of texts that inform, persuade, describe, evaluate, or tell a story and are appropriate to purpose and audience.

6.0: Students write with a clear focus and logical development, evaluating, revising, and editing for organization, style, tone, and word choice.

7.0: Students write using standard English grammar, usage, punctuation, capitalization, and spelling.

Using all three of these standards together in a unit is not uncommon. For example, in the teaching of personal narratives, students would first select a topic and an audience, create their stories using the writing process, and then focus on specific grammatical concepts as identified by the teacher using the ELA Content Standards, Power Standards (CCSD), or grade-level syllabus.

**The Communication Strand:**

The next three standards address the need for students to use their listening and speaking skills for specific purposes within the English/Language Arts classroom. If displaying these three standards in your classroom, a color such as purple might signify discussions, oral presentations, or active listening activities.

8.0: Students listen to and evaluate oral communications for content, style, speaker’s purpose, and audience appropriateness.

9.0: Students speak using organization, style, tone, voice, and media aids appropriate to audience and purpose.

10.0: Students participate in discussions to offer information, clarify ideas, and support a position.

Reading and writing still play an important role in the teaching of standards 8-10. Discussions based on course reading and presentations based on course writing assignments help the students organize their ideas and express themselves using a specific framework appropriate to the purpose of the assignment.

**The Research Standard:**

Standard 11, the final standard, encompasses most of the previous standards through the use of research. If color coding this standard, the use of green would be entirely appropriate if you used yellow to signify your reading standards and blue as your writing standards, as the two colors blended together create green.

11.0: Formulate research questions, use a variety of sources to obtain information, weigh the evidence, draw valid conclusions, and present findings.

While this standard incorporates many of the other standards, it also sets the expectation of higher levels of thinking in student work through the use of weighing evidence and drawing conclusions.

As all teachers know, students cannot learn in isolation; learning takes place only when connections are made. The blending of the various strands within the Nevada English Language Arts Standards can help students see the connections between reading, writing and communicating as it applies to them in both the classroom and in their lives.

Written By: Amy Raymer
Secondary Literacy, RPDP
As teachers, we have the best intentions. We want our students to be free-thinking inquirers, but the realities of the classroom grasp us quickly. The harshest realities are the students themselves and their seeming unwillingness to pose questions beyond the superficial. Why should teachers care if the students experience scientific investigations if they lack the will to truly inquire?

Fortunately for us, the core of this question is a fallacy. We cannot expect students to have the skills to conduct scientific inquiry without first guiding them through its fundamentals. Students must be trained to pose scientific questions, as well as to make meaningful observations and perform analyses underpinned by scientific methodologies. As listed in the National Science Education Standards (http://www.nap.edu/readingroom/books/nses/), by the end of middle school, students should develop abilities necessary to do scientific inquiry through the use of the following skills:

- Ask questions that can be answered through scientific investigations.
- Design and conduct a scientific investigation.
- Use appropriate tools and techniques to gather, analyze, and interpret data.
- Develop descriptions, explanations, predictions, and models using evidence.
- Recognize and analyze alternative explanations and predictions.
- Communicate scientific procedures and explanations.
- Use mathematics in all aspects of scientific inquiry.

Again, we want students to have these basic inquiry skills prior to entering high school. Most often students do not and that is because we, as teachers, do not teach students how to do these things. Guided practice is the solution.

**Guiding One Step at a Time**

The trick is how to guide students in developing these inquiry skills. To reduce frustration and set the foundation for success, the component parts of inquiry must be “phased-in.”

Ronald Bonnstetter from the University of Nebraska proposes a model called the “inquiry teaching continuum” (http://unr.edu/homepage/cannon/ejse/bonnstetter.html). In this model, a typical science activity is broken into six parts: (1) topic, (2) question, (3) materials, (4) procedures/design, (5) analysis/results, and (6) conclusions. Note how these six parts are roughly equivalent to what the NSES consider as the necessary skills to do scientific inquiry. In this model, the idea is to inject inquiry into each area—one at a time. Bonnstetter’s continuum (see table 1) provides a framework for phasing in inquiry.

In this table, “teacher” means direct teacher control of an area and implies little inquiry. “Student” means this is an area where students are directing this component and actively conducting scientific inquiry.

The teacher guided/verification activity is most commonly used by science teachers; these are often called “cookbook” labs. The teacher directs the activity from generating the topic and question, listing the materials and procedures to be used, and describing how the analysis is to be done. The only area where students engage in inquiry is communicating their results. While such cookbook activities do not promote an overall environment of inquiry, they establish a model for how scientific investigations are conducted, and allow students to see an example of the various steps. Structured activities occurring at the beginning of the year will help ensure that students understand basic laboratory setup and safety, as well as proper graphing and analysis.

<table>
<thead>
<tr>
<th>Table 1. The Inquiry Continuum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher/Guided Verification Activity</td>
</tr>
<tr>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Content</td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>Materials</td>
</tr>
<tr>
<td>Procedures/Design</td>
</tr>
<tr>
<td>Results/Analysis</td>
</tr>
<tr>
<td>Conclusions</td>
</tr>
</tbody>
</table>

“It is, in fact, nothing short of a miracle that the modern methods of instruction have not yet entirely strangled the holy curiosity of inquiry.”

Albert Einstein, “Autobiographical Notes” US (German-born) physicist (1879 - 1955)
techniques. To adequately prepare students (and to ensure understanding of the content being reinforced in the laboratory), it is critical that the teacher continuously move around the room, monitoring and coaching student laboratory groups, guiding them as they practice laboratory fundamentals.

MAKE A QUICK TRANSITION
Transitioning to guided activities should happen quickly in the school year. Once properly engaged in a concept, students work in small groups and as a large group with teacher facilitation to develop scientific questions for investigation. After teacher approval, students generate a list of materials and procedures to test their questions in a scientifically defensible manner. Teachers check materials and procedures before students are allowed to collect data. Early on, student procedures are often incomplete and the teacher should allow sufficient time in the activity for students to modify their procedures.

The first guided activities should be relatively simple to ease student development of their investigation procedures. In listing their procedures, it is also important that students create their data tables and write their graphing and analysis procedures. For example, to reinforce basic graphing skills, early on you may want to have students write something like the following. “A scatter plot will be created using the collected data. In this scatter plot, axes will be labeled with units.” Although these are not normally thought of as laboratory procedures, having students explicitly write them down reinforces the skills necessary to conduct a thorough investigation.

GUIDING IN BALANCE
As an example of a guided activity, “What Can Craters Tell Us About a Planet,” from NASA’s Mars Education Program (http://mars.jpl.nasa.gov/education/modules/GS/GSmSet.pdf) is broken down to illustrate how such an activity would progress.

1. Engaging the Students in the Content—Students examine images of Martian craters (http://mars.jpl.nasa.gov/) and, using a set of guiding questions, speculate on what caused the craters to form.
2. Developing the Scientific Question—Students model the formation of an impact crater by dropping objects into a tray of powder. They observe the features and effects of the impacts, and re-examine the images. The students then generate a scientific hypothesis for further investigation. Close guidance during this step ensures that students develop a testable question that is within the constraints of the equipment and materials available. An option is to review the questions with the whole class to refine and revise as necessary.
3. Creating an Experimental Design—Students develop the procedures necessary to gather data about their question. As part of the procedures, students list the materials needed and proper measurement techniques and analysis steps. For example, students may design an experiment to see how the mass of an impactor affects crater depth. With such an investigation, it is important that students write down the procedures for proper mass balance measurement techniques. Students must also ensure that size and shape of the different mass impactors should be identical. If such same size and shape, but different mass, impactors are not available, the experimental question will have to be revised. With most investigation, students should conduct several trials to reduce experimental error.
4. Collecting and Analyzing Data—Arranging data in tables and graphing are essential skills for science students. Students collect data in a table and prepare a graph from these data. The teacher should ensure data tables are set up correctly as the students collect data and that students have selected the proper graph for data they have collected. With the varying mass versus crater depth example, students will want to have a data table that lists the varying mass with resulting crater depth. Columns (or rows) for multiple runs at each mass should be included on the table. Monitoring how data are being entered in tables and providing guided practice during graphing will facilitate student understanding and success in data collection and analysis.
5. Applying Results—Discussion of the results and conclusions relate back to the scientific question being asked. Students should revisit their initial examination of the images that relate directly to their scientific question and data analysis. If they investigated how the mass of the impactor affects crater depth, they should look carefully at the images to see if they can determine crater depth and possibly infer the relative mass of craters in different images. They can also discuss how these inferences may be limited (e.g., did the nature of the surface vary in the images and did this impact crater depth). General results are monitored closely by the teacher to ensure that students have not developed non-scientific and/or incorrect explanations for their results. If feedback on results is not conducted in a timely manner (e.g., prior to leaving the classroom), erroneous or naïve conclusions can lead to deep-rooted misconceptions.

REALITY’S CHALLENGE
Student centered research activities are possible via one or two special projects throughout the year, such as in a school science fair. But, for most classroom environments, it is impractical to conduct regular laboratory activities that have an appreciable student-centered component. Research activities conducted by students are simply too time-consuming to conduct on a regular basis, and for almost all of the year’s activities, the teacher must direct the content to which the students are exposed.

GUIDING TO UNDERSTANDING CONTENT
Through guided practice, the science teacher can create an environment allowing components of student centered inquiry, without sacrificing the content delivery. In fact, such guided practice reinforces the content and skills needed for student success in science. This success is fostered with careful monitoring and reinforcement by the teacher.

Written by: Doug Lombardi
K-12 Science, RPDP
Strategies for Teaching English Language Learners in the Science Classroom

We know that teaching science though inquiry and using language learning skills benefit all students, especially the English Language Learner, but what are the most common strategies that are used when teaching inquiry science that make such great learning results? A literature review covering the past ten years (Crowther, Robinson, Edmundson, & Colburn, [in press]) highlighted good science teaching and strategies that work well for ELL students. The following strategies came to the top of the list:

**STRATEGY ONE:**
Cooperative Learning allows for multiple uses of communication and cooperation when implemented appropriately. This also allows for dialogue between students and ELL students may be paired with more proficient ELL students who may do some interpretation for them.

**STRATEGY TWO:**
The more you can use visuals or the real thing (realia), the better ELL students will be able to understand what is being taught and make connections to the real world. Graphic organizers, grids, lists, word walls, and other strategies that allow for the organization and understanding of material in multiple learning modes seem paramount.

**STRATEGY THREE:**
During instruction, the teacher must use scaffolding as well as using frequent opportunities to repeat, rephrase and summarize the topics being discussed. Additionally, keeping lecture components short or remembering the 10/2 (ten minutes lecture to 2 minutes student interaction) and increasing wait time for opportunities to repeat, rephrase and summarize the topics being discussed. During instruction, the teacher must use scaffolding as well as using frequent practice opportunities for reading, writing, listening, and/or speaking.

**STRATEGY FOUR:**
Rethinking assessment in terms of what is appropriate for the lesson and the level of the learners along with plenty of alternative assessment (projects, notebooks, role playing, etc.) will help the teacher better understand what the students have learned, not just the ability to communicate in English.

There are also some simple things that the teacher can do to modify lessons that allow for more successful learning for all students. These come from the Sheltered Instruction Observation Protocol (SIOP) program:

- Have clear content objectives
- Have clear language objectives
- Choose content concepts appropriate for age and educational background (linguistically and developmentally appropriate)
- Keep student engagement at 90 – 100% of the instruction time
- Use plenty of supplementary materials frequently, makes lessons clear and meaningful (graphs, visuals, models, etc.)
- Try to adapt the content to all levels of student proficiency. (modify text assignments, etc.)
- Use meaningful activities that integrate lesson concepts with language practice opportunities for reading, writing, listening, and/or speaking.

As we rethink traditional science instruction to include inquiry science methods, including lots of hands-on learning experiences while using language learning strategies in listening, speaking, reading and writing, learning science will become more meaningful and allow for better success in learning both language and science. Trying out just a few of these strategies per lesson will allow for greater understanding in science not just for ELL students, but for all the students in the classroom.

Written by: David T. Crowther
University of Nevada Reno

References

VARIABLE CREDIT

The Regional Professional Development Program (RPDP) is offering teachers the opportunity to take five 3-hour workshops to earn one university variable credit. The professional development offerings in this magazine indicate the workshops that are for variable credit (VAR). NOTE: Secondary teachers must take secondary workshops and elementary teachers must take elementary workshops; however, secondary math and science workshops can be taken together to earn variable credit. There is NO COST to attend these workshops and there is NO COST for university credit. Workshop topics can only be taken once per year and may be repeated in the following year. Under the variable credit program, there is a maximum limit of five university credits per year but there is no limit on the number of workshops that can be attended by participants. Participants may petition for university credit in April 2007 and a Pathlore transcript will be required at the time of petition. Attendance for the entire three hours of a workshop is required for credit. Workshops taken for credit in 2004–2006 may be repeated for credit in 2006–2007.

REGISTRATION

The Regional Professional Development Program (RPDP) uses the “Pathlore” registration system to enroll participants. This registration system requires that participants go to the Pathlore website and login to the system in order to enroll in specific classes.

The web address is http://pathlore.cscc.net/stc/student/pccsi.dll/mainmenu="student brings participants to the “Pathlore Participant Center.” In the upper right corner of the Participant Center, there is a sign-in link. By clicking the sign-in link, participants have the opportunity to search classes and enroll in open classes with the click of a button. To successfully sign-in to the Pathlore system, a participant must have a valid InterAct user ID and password. This InterAct ID and password must be used to login to the Pathlore system.

Participants who successfully log in to Pathlore must click on the “Professional Development Search” link to look for open RPDP classes.

Finally, select a category “Regional Prof Development” and type a search into the “Search for these words:” field. Enter the RPDP course code into this area to conduct a search for a specific class that is advertised on the pages of this magazine. To conduct a more general search, a participant might type in words such as: math, English, science, elementary, secondary. Caution: several more classes will appear when conducting a general search.

RPDP CAMPUS MAP

The Regional Professional Development Program is offering teachers the opportunity to take five 3-hour workshops to earn one university variable credit. The professional development offerings in this magazine indicate the workshops that are for variable credit (VAR). NOTE: Secondary teachers must take secondary workshops and elementary teachers must take elementary workshops; however, secondary math and secondary science workshops can be taken together to earn variable credit. There is NO COST to attend these workshops and there is NO COST for university credit. Workshop topics can only be taken once per year and may be repeated in the following year. Under the variable credit program, there is a maximum limit of five university credits per year but there is no limit on the number of workshops that can be attended by participants. Participants may petition for university credit in April 2007 and a Pathlore transcript will be required at the time of petition. Attendance for the entire three hours of a workshop is required for credit. Workshops taken for credit in 2004–2006 may be repeated for credit in 2006–2007.