Teaching for
High Potential
QUALITY CLASSROOM PRACTICE FOR HIGH-ABILITY STUDENTS

Winter 2012

IN THIS ISSUE

Minimizing the Impact of Asperger's Syndrome in the Classroom: Practical Tips for Educators

By Traci McBride, West Hall High School, Oakwood, GA

I have known Asperger's Syndrome through my child for 21 years now, and, yes, we are survivors. Not only did a well-meaning psychologist describe him as a child with attention-deficit hyperactive disorder (ADHD) at the age of four, but he also told me that my child was "acutely" gifted. I did not realize at that time that I had a gifted child with Asperger's Syndrome (AS), a twice-exceptional or 2e child. It was then that I began a journey of educating teachers and parents alike about effective ways to meet the needs of this special population of gifted children. As an educator and parent of a child with AS, I have learned several tips to make educators' lives easier when dealing with gifted students with AS.

Common challenges

Students with AS have common challenges that can be dealt with successfully in the classroom if done with some flexibility (Kirby, 2008). Five of these common challenges are lack of social skills, preoccupation with a particular topic or subject, obsessive routines, heightened sensitivity, and selective hearing.

1 Lack of social skills

Students who have AS lack basic social skills. They do not make eye contact, often invade personal space, and do not understand social cues.

My son, Alex, did not have a friend until he was 14 years old. I vividly remember inviting every child in Alex's kindergarten class to his birthday party. While I had taken him to most of his classmates' parties and knew they were all well attended and very typical with all of the children having fun, only three boys came to Alex's party. Expecting many more children and their parents to attend, I was devastated but tried to make the ones who had come feel welcome. In hindsight the smaller number was actually better since Alex was over-stimulated that day and became rather bossy. That day I realized that I could not make friends for my child but would—so he could gain the skills he was lacking to help him understand how to be a friend and thereby make friends for himself.

Teacher tips

- Involve the child with AS in small, cooperative groups with assigned roles in order to provide opportunities for AS students to interact with others and vice versa. While not always a workable, pleasant situation for all parties involved, the AS student must have exposure to others in order to develop the skills necessary to interact successfully in social situations.
- Involve the child with AS in social skills training with the assistance of the school's counselor who can interact with the child through scenarios to train him or her to use the appropriate behaviors for various social settings.
- Encourage the child with AS to participate in team sports. While understanding and flexibility is necessary for the parents, coaches, and other students, it is possible for a child with AS to play team sports. If viewed as a way for the child to learn more about social skills and appropriate social behaviors, the child can gain confidence and self-esteem if he/she becomes an accepted member of the team.

2 Preoccupation with a particular subject

Students with AS are often experts on a particular topic. Some are passionate about trains; others, computers; still others, Disney movies.

Even in my earliest memories Alex adored Sonic the

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FROM THE **EDITOR**

"We Have Power!"

I'd like to share a brief account from this past fall, when many folks in the Northeast found themselves without electricity for the better part of the week.

Taking into account recent environmental disasters, this loss of power is irrefutably insignificant, but to my three-year-old son, it became a way of life. So much so, that even now he'll flip on a lamp or multiple light switches and shout, "we have power!" I answer simply, "yes Coop, we do." The last time this exchange took place, and there have been several, I sat back for a moment and thought of the many ways this statement relates to those of us involved in our educational system.

As often happens when routine and common experiences become commonplace, expectations and assumptions become part of the fabric of our lives. Statements such as, "that's the way it's always been" or, "that's how we've always done things" are often the last words of a conversation. If we fail to stay abreast of new developments in our field—about best practice, definitions of giftedness, and student identification, among other important topics—how can we possibly expect our students to develop a keen interest for themselves in the importance and value of investigation as a path to greater understanding?

How many students have become complacent in stagnant classrooms, expecting nothing above the ordinary, for they have never known what it means to be challenged? How many teachers are satisfied with textbook questions and definitions at the end of each chapter, relying on multiple choice questions, letter grades, and standardized tests as motivating factors in their classroom? How many twice-exceptional students have been diagnosed with syndromes and disorders before their talents were recognized, and how many of them were identified with talents, assuming everything else would fall into place?

We have the power to change our schools, our students, and our educational system. We have the power to recognize talent, serve the students identified, and pass on our understanding to other educators. We have the power to advocate—for ourselves, our students, and our vocation. Just as the excited flipping of a light switch brings with it the hope of a bright light signifying the return of electricity, so too should we be energized each and every time we try something new in the classroom, speak to students about their passions, or explain what our field has to offer other education professionals.

I hope you'll be empowered with new ideas from this issue of THP. As always, I welcome your comments and suggestions.

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NATIONAL ASSOCIATION FOR Gifted Children

Recognizing the Need for a Continuum of Services

By Jennifer Selting Troester, O'Neill Public Schools, O'Neill, Nebraska
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Adams County School District 14 collects a "Body of Evidence" to discover the gifts and talents of each student and to determine if a student needs programming beyond that offered in the regular curriculum. Evidence of exceptional ability is collected in four areas: aptitude, achievement, performance, and behavior. To be formally identified in Adams 14, a student must qualify in at least three of the four areas. Aptitude and achievement are measured using formal assessments, performance exhibited through student projects and portfolios, and behavior evaluated through the use of rating scales.

Once identified, the student is given an Advanced Learning Plan (ALP), a requirement in Colorado for every identified gifted student. The ALP is a guide for making curricular and instructional decisions—a tool for monitoring students' progress—and serves as a way to record accountability. The ALP is reviewed annually with families and teachers; changes are made as needed.

A majority of programming is done through differentiation and content extensions in the classroom. According to Adams 14, this programming service covers up to 80-90% of the gifted students in the district. For another 5-10%, other support is needed. This might include more time with a certain teacher, moving to another classroom for certain instruction, more independent study, social-emotional programming, or specific extra-curricular activities. The remaining 1-5% of the gifted population requires intensive, individualized services.

At the elementary level in Adams 14, there is an option for early entrance to kindergarten and first grade. In order to qualify for the early access program, children must be considered highly advanced academically, as well as socially and emotionally mature. The child must be motivated to learn, as the pre-school preparation may not be enough. Service options at the elementary level include advanced levels of reading and math, creativity lessons and training, and a focus on social interaction.

Identified gifted and talented students in the middle school receive a combination of three techniques to meet their needs. These include differentiated instruction by the classroom teacher, small-group instruction within the regular classroom, and after-school enrichment opportunities like Spelling Bee and Destination Imagination. At this level, grouping strategies and advanced content is used in classes to meet the needs of gifted students. There is also an opportunity for advanced math students to take classes at the high school if necessary.

High school gifted students have a wide range of options. Honors classes in 9th and 10th grade in Language Arts, Math, Science, and Social Studies give students the opportunity to learn the academic skills necessary to be successful in the International Baccalaureate Program. Students also have the chance to take college level classes while in high school, earning college credit.

Adams County School District 14 has established high expectations for the services it provides. They desire to inspire, educate, and empower every student to succeed in the 21st century. With a strong foundation for gifted and talented identification and continuum of services in action, there is no doubt they will accomplish this goal. ■

ADAMS COUNTY SCHOOL DISTRICT 14

Commerce City, CO • www.adams14.org

Overview: Adams County School District serves advanced students through early access to preschool, elementary and middle school programs that provide choice to enhance learning, and honors classes in the high school.

Enrollment: 6,950

57% of the district's students do not consider English as their first language, and 83% of students participate in the Free and Reduced lunch program.

Mission Statement: We in Adams County School District have an obligation to promote the development of unique potentials. Therefore, we are committed to programs and services that promote the individual needs of those students who demonstrate the potential for superior performance. As educators we recognize that gifted and talented students have education needs that differ from those of their peers. While gifted and talented students require the basic knowledge taught in regular school programs and need the opportunity to develop socially by interacting with their peers, they also require differentiated learning experiences that challenge and assist them and are more appropriate to their needs.

Creating 'Safe Haven' Schools for Targeted Populations of Gifted Learners

By Joy Lawson Davis, University of Louisiana at Lafayette • profjoy1022@gmail.com

Every day, thousands of children who are gifted or who have high potential enter schools seeking a place where they will be nurtured, challenged, and guided towards a positive future. Many live in communities where they may stand out as different because of the way they express themselves, the way they choose to socialize, or simply because of the way they see the world. For some, social isolation, vulnerability, and an overall feeling of being different creates a psycho-social dilemma in that they may find it difficult to locate peers or anyone who understands and appreciates them. When coming to school, what these students seek most is a 'safe haven,' a place of refuge and security where they can open up, be their true selves, express their understandings about topics of interest, and have opportunities to act on these understandings in constructive and purposeful ways.

Among the students for whom these situations may be the norm are three particular groups, those most at risk for underachieving in our nation's schools today: *rural students; African American males;* and *Gay, Lesbian, Bisexual, Transgender/transsexual students (GLBTT)*. Establishing 'safe haven' classrooms for these students is critical. While their needs may differ because of their geographic location, gender, life experiences, ethnicity, ability, and interests, they do have some traits in common:

- They need strong support systems that are designed to meet their specific characteristics, including mentors from similar backgrounds and experiences;
- They have been victimized, either intentionally or unintentionally, by the very environments established to protect and nurture them; and
- They have the ability to make great contributions in the future and serve as role models for others sharing similar traits.

Overview of specific group needs

Rural students make up one in five of our nation's school population. Many rural students live in high-poverty areas and may attend small schools that are remotely located. Often these schools do not have the funding or staffing to provide high quality enrichment and advanced learning options. Due to these factors, rural gifted students often have to travel great distances to regional centers, away from common peer groups. Many come from homes where they will be the first within the family with opportunities to attend and graduate from college. Thus, family members may not always identify with the challenges they face as learners. For these students, coming to school is a journey to a 'safe haven.' Within their schools we need people who will advocate for them, understand them, and work to establish effective and efficient academically nurturing environments.

The second targeted group is **African American males**. It is well known by the educational community that African American males are at high risk for academic failure in our nation's schools. Among this group are many boys and young men with great intellectual potential who can thrive when these schools set high expectations and provide academically rigorous instruction taught by culturally sensitive teachers. 'Safe haven' schools for these students include opportunities for them to interact with positive Black male role models, enabling discussions about racial identity, self-esteem, and future goals. These conversations and experiences enable Black male students to envision themselves in the future as successful, contributing members of society. 'Safe haven' schools also create cohort groups that enable these students to support each other in maintaining academic progress as they prepare for secondary and post-secondary education.

Finally, there are the **Gay, Lesbian, Bisexual, Transgender/transsexual (GLBTT)** gifted students who attend schools in all communities across our nation every day. These students suffer from lack of acceptance and may be more at risk for being verbally or physically abused in school than any other population, given the social stigmas attached to the label. As a society, we have yet to fully accept the very real experiences of this target population and unfortunately, many of our schools mirror societal conditions. 'Safe haven' schools for GLBTT gifted students are staffed by teachers and administrators who fully accept their differences and do not tolerate discrimination or abusive behavior in any form from students. These schools design classroom experiences that are accepting, challenging, and open environments for interactions. 'Safe haven schools' for GLBTT gifted students provide a range of opportunities with no limitations for access and involvement.

Creating 'safe haven' schools for these and all gifted learners will result in challenging courses and program services designed to match intellectual abilities. Openly discussing and resolving matters of concern to these students are critical for schools to provide optimal service experiences. We need all educators to be empathetic and culturally competent to ensure that no child's gifts are wasted as we prepare them for positive futures. The students are counting on us. ■

Recommended Resources

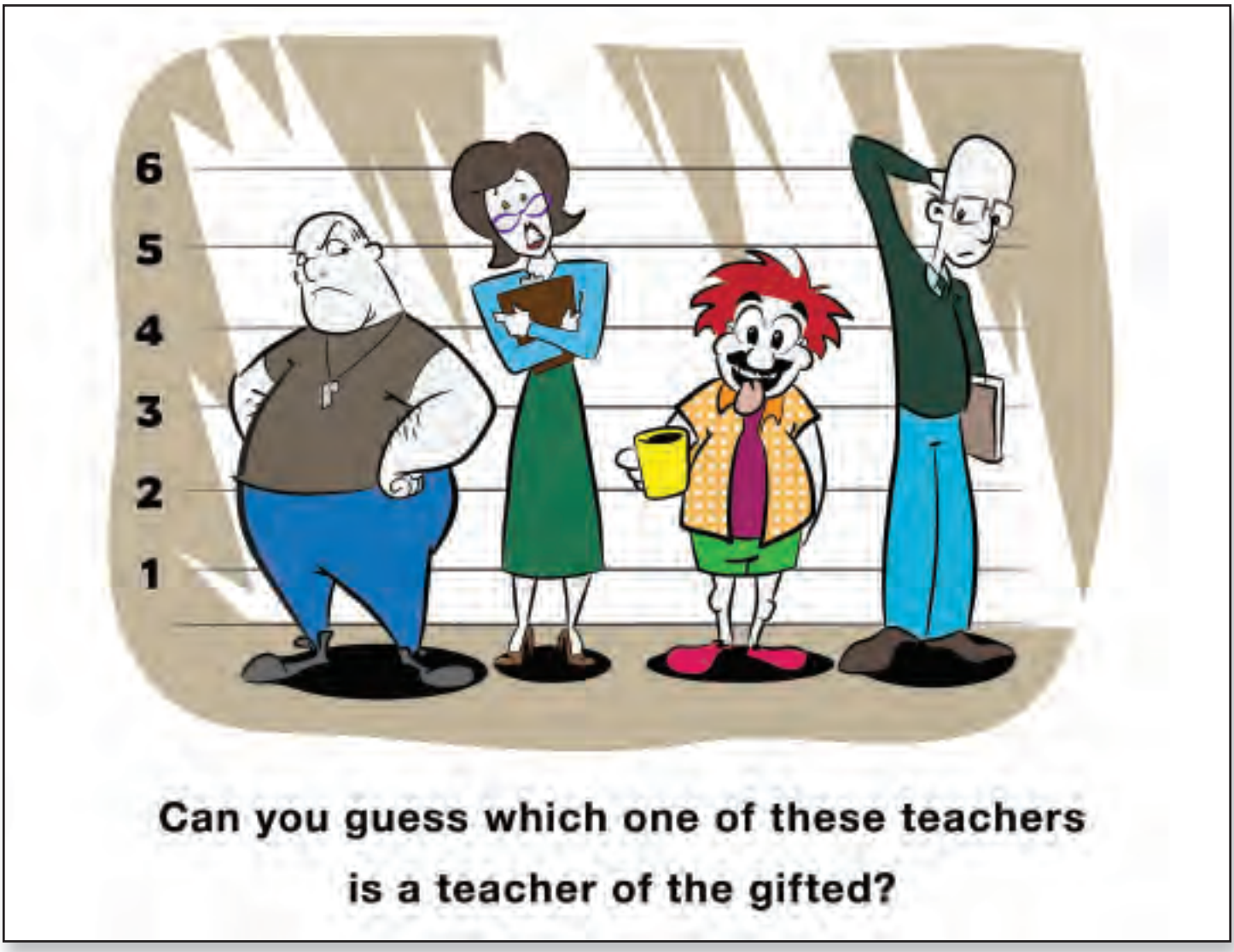
Castellano, J. A., & Frazier, A. D. (2010). *Special populations in gifted education*. Waco, TX: Prufrock Press.

Davis, J. L. (2010). *Bright, Talented & Black: A guide for families of African American gifted learners*. Scottsdale, AZ: Great Potential Press.

SMART COOKIES

BY BESS WILSON

IDEA: HOPE WILSON • GUEST ARTIST: JIM WILSON



Arriving at the Core

By Jennifer Beasley, University of Arkansas
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"The teacher's overriding moral purpose is to meet the needs of students, even if it conflicts with personal preferences."

—Lorna Earl, Assessment AS Learning

Common Core State Standards: A good fit for gifted education?

As of September 2011, 44 states have adopted the Common Core State Standards. As the new year begins, many educators of the gifted are wondering what these standards might mean for gifted curriculum and whether these new standards will be a good fit for the students they serve.

What is Common Core?

The Common Core State Standards Initiative is a state-led initiative coordinated by the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO). The Standards have been developed in collaboration with teachers, administrators, and content experts with the purpose to provide a clear framework to prepare children for college and the workforce (NGA & CCSSO, 2011). According to NGA and CCSSO, the standards:

- Are aligned with college and work expectations;
- Are clear, understandable, and consistent;
- Include rigorous content and application of knowledge through higher-order skills;
- Build upon strengths and lessons of current state standards;
- Are informed by other top performing countries, so that all students are prepared to succeed in our global economy and society; and
- Are evidence-based
  (NGA & CCSS, 2011, p. 1)

To be clear, the Common Core initiative is not a federal mandate, nor are these federal standards. The initiative has been a state-led development and will continue to be led in that way. The Common Core Standards were borne of an interest in collaboration in order to better prepare all learners for 21st century skills and are meant to provide more consistency in what is expected of student learning across the country.

To date, only English-language arts and math standards have been created, but there is a plan to develop standards in other subjects in the future, beginning with science. The standards created so far are not only focused on skills, but concepts as well. Key to the standards is the reality that they are meant to be building blocks for successful classrooms and that it is up to teachers, districts, and states to develop the curriculum (NGA & CCSS0, 2010). To view the standards, please visit the website www.corestandards.org.

What the field of gifted education is saying about Common Core

The Common Core State Standards are not intended to replace curriculum for gifted and talented students. In a webinar on June 10, 2010, the NGA and CCSSO stated, "Many students will meet the expectations outlined in the standards prior to the end of high school. For them, advanced work…must be made available." Following that presentation (www.corestandards.org) NAGC released a statement emphasizing that no matter how rigorous the standards, there is a continued need to adjust the curriculum and instruction that flows from them to meet student readiness. According to NAGC (2010), "Too many advanced students languish in today's classrooms with little rigor and much repetition. With careful planning, the new standards offer the prospect of improving the classroom experience for high-ability students in significant ways…"

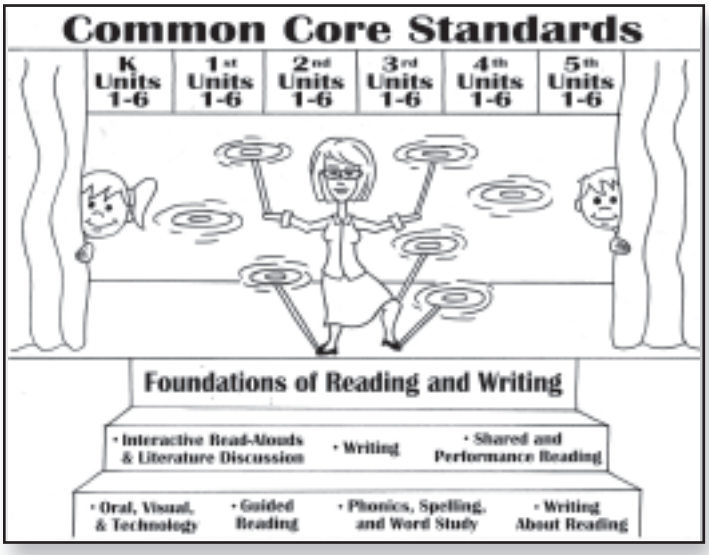
Is Common Core a good fit for curriculum that challenges all learners?

The short answer is yes. The Common Core Standards are not arbitrary, but draw on a firm foundation of the National Assessment of Educational Progress (NAEP) frameworks in Reading and Writing as well as conclusions from the Trends in International Mathematics and Science Study (TIMSS) report. The Common Core addresses the common problem of a curriculum that is "a mile wide and an inch deep" by building upon the most advanced current thinking about preparing all students for success in college and their careers (NGA & CCSSO, 2010).

Importantly, the new Common Core Standards hold promise for all learners as we prepare students for college and workforce, but like all standards, we need to continually assess students to find out their strengths and weaknesses academically in order to adjust the learning goals and strategies to meet individual needs. Standards and goals are the destination, but they are not the road we take. Challenging, high

quality curriculum is still in the hands of the experts, the teachers. It is up to us to create a journey for each student that enables all to experience rigor.

The Common Core Standards are NOT a curriculum. As stated before, they are a set of shared goals and expectations for the destination to which our students are heading. NGA & CCSSO (2010) stated in their *Myths v. Facts About the Common Core Standards*, "teachers will need to continue to devise lesson plans and tailor instruction to the individual needs of the students in their classrooms" (p.4).



Visualizing the role of the teacher in this new framework.
Author: Linda Massey; Artist: James Crumby
Springdale School District, Springdale, AR

As we look to the future, not just in the gifted classroom but in all classrooms, we cannot lose sight of our mission, to honor each child and do all we can to respond to their needs; a mission that must be revisited in order to ensure incorporating best practice instruction within the framework of the Common Core Standards. The road ahead will certainly bring us into new territory, and as we get our bearings and move ahead, let us never lose sight of our purpose, striving to hold on to the best practices in curriculum and instruction. ■

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National Governors Association & Council of Chief State School Officers (2011). *Resources: The common core state standards validation committee*. Available from http://www.corestandards.org/

National Governors Association & Council of Chief State School Officers (2011). *About the Standards*. Retrieved August 31, 2011, from http://www.corestandards.org/

Online

Ring in the 2012 New Year with NAGC

www.nagc.org

It is hard to believe that the school year is half over. We at NAGC know that many educators, parents, and administrators need a refresher on some of the common issues facing families with gifted children. There is also a host of new challenges for the advocate. New and continuing conversations with legislators at the state and national levels will mean new opportunities to educate decision makers about the needs of gifted and talented children.

Visit the NAGC home page for links to the newest resources available to the field including books, print materials, standards, and web content.

The Changing Weather: Developing Conceptual Understanding in Young Children of Weather Phenomena

By Steve Coxon, Lori Bland, & Kimberly Chandler
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Authors' Note: *The following piece discusses a science unit that engages elementary children as meteorologists. In* Weather Reporter, *the change macroconcept is employed through experiments and hands-on activities that involve students in observations and data collection, helping students to see change from a scientific perspective. Students learn content by studying changes in weather and changes in the instruments used to measure weather. The unit includes pre- and post-assessment opportunities for students to demonstrate growth in their understandings of the change macroconcept. This piece also aligns to the following* National Science Education Standards *(NRC, 1996): Teaching standards, Standard A: Teachers of science plan an inquiry-based science program for their students, and Content standards, Grades K-4: Unifying concepts and processes standards, Earth and space science standards*

Change happens. We want children to understand that change occurs all around us. Clouds pass overhead, spring brings rain showers, the temperature varies daily, and our students learn new things every day. Observing, understanding, and predicting change is fundamental to weather and to science in general (Sher, 2004).

Macroconcepts

Educators once assumed that macroconcepts were too difficult for young children to understand. We now know that young children not only can understand macroconcepts, but that they are held back in their learning when macroconcepts are not taught to them (Duschl, Schweingruber, & Shouse, 2007). When taught explicitly, macroconcepts help children understand and retain subject matter and make learning about new topics easier (Bracken, 2007; Mintz, 2005; Rittle-Johnson, & Alibali, 1999). Conceptual understanding is now included in the early childhood educational standards of all 50 states (Bracken & Crawford, 2009) and is a major facet of the *National Science Education Standards* (NRC, 1996). In a report on science and math instruction, the National Research Council (NRC) (2002) delineated the central role of concept development in the process of learning science deeply, noting the principles of learning with understanding, using metacognitive strategies, and building on prior knowledge. It may be helpful to think of macroconcepts like a filing system that organizes information for easy retrieval and application of processes across the files.

Macroconcepts can help children understand weather phenomena while developing scientific process skills. We have developed and field-tested rigorous K-3 science units that introduce young learners to macroconcepts, key science concepts, and the scientific investigative process (VanTassel-Baska & Bracken, 2004). The integration of these three key components supports science literacy skills and habits of mind, such as inquiry, critical-thinking, and argumentation. To promote skills development and an understanding of weather with second graders, we used a teaching model incorporating macroconcepts based on the Taba (1962) model of concept formation.

In *Weather Reporter* (2010), we use the macroconcept of change to help students develop a deep understanding of weather and science processes. Change is woven into *Weather Reporter* in several ways. An early lesson engages students in thinking about change in general. Weather-related experiments and hands-on activities involve students as meteorologists in observations and data collection, helping students to see weather changes from a scientific perspective. Students learn weather content by studying changes in weather and changes in the instruments used to measure weather. *Weather Reporter* also includes pre- and post-assessment opportunities for students to demonstrate growth in their understandings of the change macroconcept.

Direct engagement: Lessons in change

Early in *Weather Reporter*, students brainstorm and categorize examples of change, identify nonexamples, and make generalizations about change. When we teach this early lesson, we begin by encouraging students to work independently and then in small groups to come up with 15 or more examples of things that change. Student examples often include weather examples such as cloud types changing from one day to the next, the outside tem-

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Kimberely Chandler, Ph. D., is the Curriculum Director at the Center for Gifted Education at the College of William & Mary. She completed her master's degree in gifted education and her Ph.D. in Educational Policy, Planning, and Leadership, with an emphasis in gifted education administration, at William & Mary.

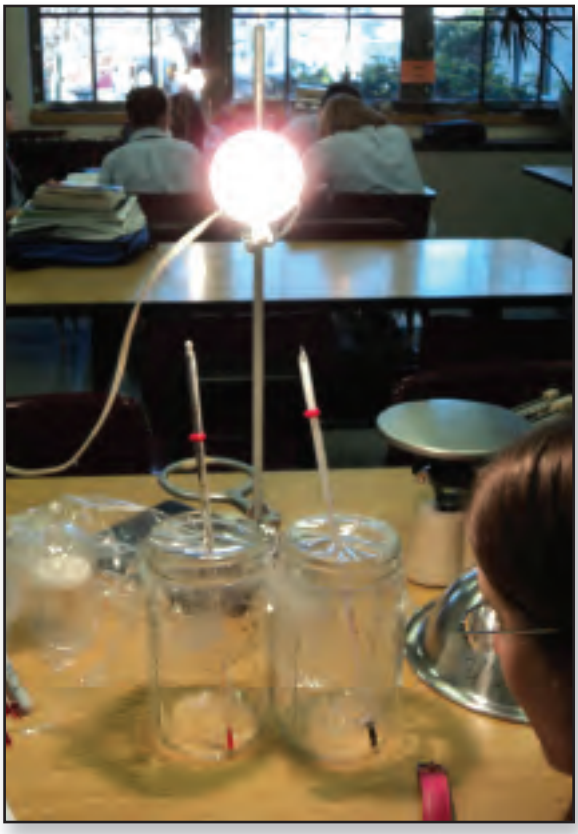
perature, and forecasts. Students can include other changes as well, including other science examples and personal examples such as their own bodies getting taller as they age. A wide variety of change examples should be included to aid in understanding how pervasive change is.

Next, we facilitate a whole-class discussion about the change examples. Sometimes this discussion may involve debatable examples. For instance, one group may suggest that water "changes" and another may challenge that idea. Water may precipitate as liquid or solid, it evaporates as a gas, and it may condensate as a cloud. While one student sees that as change, another may see it as a nonexample because, regardless of its state, it is still a water molecule. The important part of this discussion is not to come up with a single set of answers, but to discuss why an example does or does not illustrate change.

Following the discussion, students categorize their lists of changes. Writing the changes on individual note cards can help facilitate this process by making it more hands-on for students. Student-created categories might include weather changes, animal changes, and people changes; changes we can see or changes we cannot see; small and large changes, or slow and fast changes. Other categories that teachers may facilitate include human-caused and natural changes or random and predictable changes. Depending on the class, categorizing may work best as a whole-class activity. Categorizing is important in helping students to see the interrelationships among their change examples, helping to organize thinking that builds toward metacognition as understanding of the macroconcept and of weather content increase.

Teachers then ask students to brainstorm nonexamples of change in their small groups. This step sometimes proves difficult for students. Almost everything changes. Still, there are good nonexamples, and brainstorming 5 or 6 is a good start for most students. The weather might change, but not a person's birthday. Animals may grow, but their basic needs of food and water do not change. The order of life cycles also can be seen as a nonexample. While a tadpole changes into a frog, that order is static. A frog never reverts to become a tadpole. Again, the whole-class discussion at the end of this segment is key. Non-examples helps to crystallize the understanding of the macroconcept.

Finally, teachers ask students to make generalizations, or tell the class what they know about *all* change. Student categories and class discussion can help to elucidate additional generalizations. So far, two generalizations have already been discussed: change is everywhere and change is related to time. The other two generalizations that are taught in *Weather Reporter* are: Change can be natural (such as a weathering of a rock formation) or manmade (such as global climate change); and Change can be random (such as the path of a tornado) or predictable (such as the change of seasons). Generalizations serve as the capstone of the Taba Concept Formation Model and are vital to helping children understand the weather changes studied in the unit. Questions to help



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Hedgehog and video games. Growing up with technology, Alex had an obsession with "beating the game." He would often slip away from me at Wal-Mart but could always be found in the electronics or book sections, either looking at new games that had just been released or reading up on a "cheats" book so he could break the codes of the game to beat it. While his fascination/obsession has cost a good deal of money for new game systems and new games with more stops at Game Stop and Electronics Boutique than I could have ever imagined possible, this obsession has been a blessing in many ways. Alex found a place to escape from a world of peers who could not understand him or accept him. He has developed such skill at playing games that he has become an expert and plans to develop his own games in the future and market them to a world full of gamers.

Teacher tips

- Recognize the interests of the student with AS and be willing to listen to him discuss his knowledge on the subject.
- Praise the student with AS for his expertise; however, offer to expand that knowledge into associated academic areas.
- Suggest related topics for the student with AS to explore by offering books or websites on the topic.
- Accept that this interest is the student's world, the one thing that makes him feel comfortable and safe. Trying to downplay the interest or disregard it can feel like rejection, not just of the topic but of the child himself.

3 Obsessive routines

Some students with AS are ritualistic. They often have difficulties with transitions because of their lack of awareness of time.

While Alex did not have obsessive routines as some children with AS do, he did have a very difficult time with transitions. Many children do not like to change from one setting to another and are often not ready to stop what they are doing; however, Alex's behavior was rather extreme. Alex could not stop what he was doing when he was told to stop. Our morning and nighttime routines were always difficult. Alex did not want to take a bath; he would not be ready to get into the tub offering numerous excuses. Once in the bathtub, we would go through the same process of trying to get him out of the tub. While not a problem when a small child, as he got older, these challenges became more and more difficult.

Teacher tips

- AS students need time reminders. The internal clock that allows us to sense that five minutes or an hour has passed is missing in children with AS. In the classroom, when timed tests are an issue, an egg timer can help the student with AS see time pass. Also, a gentle reminder of how much time has passed either through a verbal or nonverbal cue can help students with AS better grasp the concept of time.
- Field trips can be difficult for AS students because students are out of their normal routine. A student buddy or paraprofessional can be appointed to stay with the student with AS while away from the school building. Students with AS can be distracted easily and may not realize when it's time to meet the group or be back at the bus.
- When the school day is not going to run as usual, be proactive and explain to the student with AS what to expect. Additionally, remind him of appropriate behavior for the situation along with any consequences of misbehavior. The more the student is aware of changes in his school day, the greater the chance that the student can successfully deal with them.

4 Heightened sensitivity

Students with AS are oversensitive to stimuli in general. Loud noises can create pain in their ears, light seems too bright, and clothes that are too rough can be too irritating to wear.

As a small child, Alex would cry when I put him into the bath water. I did not understand why he was always so upset. I later discovered that his tolerance to hot water was much lower than mine. Similarly, I took Alex with me to basketball games. No sooner would we get settled and situated on the bleachers than he would begin crying at the top of his lungs from noise discomfort. At another time, I took Alex to a Christmas parade so he could enjoy the clowns, the small cars, and see Santa Claus. Even though I had packed up the car, found a parking space, and walked for a couple of blocks to find a good vantage point for Alex to see the parade, he could not tolerate the noise of the fire truck siren, the loud engine sounds of the small cars, nor the loud laughter of the clowns so we made our way back to the car. His heightened senses sometimes caused additional challenges that could surprise me in a positive way or catch me unaware.

Teacher tips

- Be proactive about fire drills. Loud noises can actually be painful to a student with AS. Removing him from the classroom during a regular drill, offering headphones for him to wear, or simply letting him know ahead of time about the drill can minimize the effects of this familiar school occurrence.
- Many students with AS are sensitive to bright light. Recess or P.E. can be difficult for students with light sensitivity. Offer a shady area for them, if possible, or minimize the time outside when this sensitivity is

an issue.

- If you notice that students with AS become upset when going into the cafeteria or an assembly in the gym, give them options of alternative places to go. The noise level alone may simply be intolerable and could possibly lead to disruptive behavior.

5 Selective listening

Some students with AS may appear to be deaf but often hear everything being said around them. They do not always respond or look at the person talking to them.

Alex was always too busy playing video games, working mazes, and building with blocks to listen to conversations. Calling his name to get his attention rarely prompted any action at all. Alex was seemingly oblivious because of his intensity in another activity. I vividly remember walking in front of him to block the video game or the TV screen to see if I could try to make him listen. Conversely, I would have conversations on the phone away from Alex, but he would comment about them later on. He had been listening the entire time, just not attending.

Teacher tips

- Be aware that most students with AS do not purposely try to disregard your verbal commands. Developing a system of giving nonverbal cues may be necessary to get their attention.
- Be aware that some students with AS can hear conversations across the room due to height ened hearing ability. Even if not attending to the conversation, the student may be listening to every word spoken.
- Praise students with AS for attending to you when they do so readily. Positive reinforcement can work with students with AS just as it does with other students.

My journey with Alex has been a challenging one from which I have grown both as a parent and educator. Emerson stated, "To be great is to be misunderstood." So often gifted students, especially those with extenuating needs such as AS, are truly misunderstood. Teachers question why students who are so bright cannot follow simple rules. They doubt these students' abilities, for their gifts are often masked by bizarre or inappropriate behaviors. I hope that more educators will use some of these basic strategies to find the greatness and special gifts in students with AS so they can more easily come out from their worlds into ours with respect and dignity. ■

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And Waldo Asked, "Where's Math?"

By Eric L. Mann, Purdue University
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In thinking about a theme for this issue's column I remembered a question a student asked several years ago. She was wondering what math looked like. If she had asked that same question about literature or art we could have visited a library, or walked through a gallery, "seeing." How then, does one show what math looks like? As I thought about the question I was reminded of the *Where's Waldo* books (http://whereswaldo.com/index.html#home). Somewhere on each page of those books you will find Waldo, though it is always a challenging task. If I looked at those same pictures could I find math, too?

The student posed her question long before Google was a verb, but I, having this powerful search tool, went on an Internet hunt to find out what math looked like. My first search term was "find math," which generated many sites with an emphasis on finding an answer: *find the area, the factors, the limit, the nth term,* etc. Next I tried "looking for math" only to collect a number of job openings for math teachers and tutors, links to books, games and contests, and an occasional math blog. Googling "what does math look like" generated a number of opportunities to read about different ways math instruction is done and glimpses into math classrooms but still no image of what math looks like. One last try, with a variation on the inspiration for this search, I typed in "Where's Math." A surprisingly small number of websites were listed (< 400) in a world where googling just about anything results in over 100 million links.

The first link in the Where's Math search took me to a 7th grader's presentation on the how he found the surface area of a soccer ball using just one measurement—the length of the side of a hexagon on the ball's surface. A great problem! The narrative that accompanied the solution offered an insight into the student's thinking as he created a math problem, and from an object he valued. Choice, problem-finding, and discourse are powerful ways to connect students to the mathematics in the world around them. Was this the answer I was looking for or was it simply an activity generated in response to a teacher prompt? Was there a purpose for finding the answer besides fulfilling a class assignment? More and more, Mathematics remains something done in the classroom, for a few hours a week, without any connection to the beauty and wonder of math visualized in the world. I suspect that the answer to my questions is a resounding "no."

One way to begin to open up this world of mathematics is by using Math Trails, a way to help children discover the role and the beauty of mathematics in their life. Whether a trail blazer or a hiker, participants are involved in finding and solving problems, thinking, and talking about mathematics, akin to taking a walk with a child or grandchild and pointing out things along the way. The *Consortium for Mathematics and Its Applications* has made its book on Math Trails available as a complementary download. Visit their website http://www.comap.com/highschool/projects/mathtrails.html for a downloadable PDF file.

Just as a pocket becomes full of treasures to investigate upon a return home from a nature walk, Math Trials sparks ideas for further investigations. For example, let's suppose on your "Math Trail" students are challenged to discover the height of flagpole (without laying it down and measuring it) and have not yet explored the properties of right triangles. They are instructed to measure their height and the length of the shadow they cast. Using those and measurements taken of the length of the flag pole's shadow, they have enough information to find the answer. Extending this problem further could involve exploring the sine and cosine curves, which typically offer a glimpse into the patterns that occur in mathematics; applying trigonometric ratios as surveyors do to determine distance too far or difficult to measure objects; and an overall understanding of trigonometric ratios.

A simple discovery? Perhaps, but one with powerful applications. Remember the soccer ball problem? Your more advanced students might enjoy Carl Sagan's telling of Erastosethenes' calculations of the circumference of the earth. Done more than 1700 years before Columbus set sail to find a western route to India, Erastosethenes used nothing more than shadows, sticks, and the length of a man's pace to come within 100 miles of the actual circumference. A clip of Sagan's video is available on YouTube at http://www.youtube.com/watch?v=0JHEqBLG650.

So what is the answer to the question, "Where's Math?" The answer is easy. Everywhere. It is found in the cell phone you use, the petals of a flower, the harmonics of music, and even the tires on the school bus. Math has been with us throughout history. It began as tally marks on a stone long before letters and words were needed to record and convey information, and remains in the intricacy that allows the keys that I type on to produce this column. Open up the world of Mathematics for your students. Let them find math. Let them show you math. ■

continued from page 9

students relate the generalizations of change to new weather content. Include, Why is it important to observe the weather over a 14-day period? How are weather changes related to time? How were your ideas about clouds changed?

It's all about the weather: Making observations and collecting change data

Observation is a fundamental skill in understanding weather as well as for science in general (Eberback & Crowley, 2009). Inquiry, hypothesis, and data collection all require observation. Children need increasingly challenging observation experiences to improve their observation skills, but observation is often not valued in classrooms (Eberback & Crowley, 2009). There are many opportunities for observation and data collection in *Weather Reporter* including using sight, smell, and touch; collecting data using measurement tools such as thermometers for activities and experiments; and using observations during activities and experiments to generate new, testable questions of their own. *Weather Reporter* provides many opportunities for observation and data collection. For example, one experiment asks students to answer the question, How does the sun affect the temperature of black dirt and sand?

In *Weather Reporter*, students are taught to use their senses carefully. With teacher permission, students are encouraged to use appropriate senses in *Weather Reporter* observations. In this experiment, students are encouraged to look at, touch, and smell sand and black soil before and after 10 minutes of exposure to sunlight. By using these senses, children more readily understand the change in temperature that occurs. Teachers ask questions such as, What differences did you observe in how the black dirt and sand changed?

In the same experiment, students use observation to measure with a ruler to place the correct amount of soil and sand into two containers. Students are also asked to read a thermometer before and after the soil and sand are exposed to sunlight for 10 minutes, using observation to measure change. This hands-on experience with scientific investigation helps children to understand the macroconcept of change from the perspective of a scientist.

Using experiences with change such as in this experiment, teachers guide their students to generate new, testable questions of their own. Teachers explain that scientists often create new questions or refine their old questions after an experiment. For example, some questions that children ask: "What happens (to the temperature) when you move the black dirt and sand?" or "What will happen (to the temperature) if we put water in sunlight?" Both of these questions focus on a change in a way that encourages children to think like scientists by engaging in designing and conducting an experiment.

Pre- and post-assessment

Weather Reporter uses pre- and post-assessments for each major facet of student learning in the unit: science content knowledge, application of the scientific investigation process, and conceptual understanding of change. Based on the Taba Concept Formation model already outlined, the assessments of students' understanding the change macroconcept ask children to provide or show examples of change and generalizations about change. The pre- and post-assessments of change are assessed using a rubric. For example, a student may earn five points for 9 to 10 change examples, four points for 7 to 8 change examples, and fewer points for fewer examples. The assessments have a low floor and a high ceiling. That is, they are designed for use in a mixed-ability classroom. The pre-and post- model allows all students to demonstrate growth. Gifted students can show growth on the post-assessment even if they do very well on the pre-assessment.

Conclusion

Alice Walker wrote, "One thing that never ceases to amaze me, along with

the growth of vegetation from the earth and of hair from the head, is the growth of understanding" (Lewis, 2009, ¶7). Like Walker, children's sense of amazement for the natural world should grow with their understanding of it. Both deep and wide in the ability to help children understand weather phenomena and the world around them, macroconcepts such as change are useful in helping students to think and act like scientists, in this case as meteorologists. In *Weather Reporter*, children learn about change through the Taba model, use their senses and weather instruments to observe and collect data on changes in weather, and learn about other extreme changes in weather like tornadoes. Their growth in understanding can be measured through pre- and post-assessment of the change macroconcept. And student learning is a change worth measuring! ■

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Chronically Curious and Driven to Discover

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Recently, my reading has focused on inventive thinking and its importance to education. Information uncovered on one website provided the following information: "The driving force for the 21st century is the intellectual capital of citizens. Political, social, and economic advances in the United States during this millennium will be possible only if the intellectual potential of America's youth is developed *now*" (http://ncrel.engauge.org). To this end, educators are charged with developing self-directed learners who are able to analyze new conditions as they arise, identify new skills that will be required to deal with these conditions, and independently chart a course that responds to these changes. These learners must be able to take into account contingencies, anticipate changes, and understand interdependencies within systems. Additionally, they must be curious—perhaps chronically curious. The critical thinking that our field has been preaching for years should not be left behind. Rather, sound reasoning must bolster all of these other skills, as we see the emergence of more productive, thoughtful students who are ready to take on the issues and problems of the 21st century.

These are lofty goals, but we know that it is our business to encourage intellectual potential that enables students to be idea producers, inventing new ways to advance society. Pink (2006) refers to this process as Symphony (synthesis)—seeing relationships between seemingly unrelated fields—as essential in advancing today's society. Additionally, Dweck (2006) reminds educators to think of students with a growth mindset rather than a fixed mindset so we can enable our students to confront setbacks and advances as they learn. Dweck sees both advances and setbacks as essential steps in realizing potential, and so should we. And then there is Czikszentmihalyi (1990) who presents Flow, the construct that explains purposeful experiences in which the goal is self-fulfilling; the activity is its own reward. These scholars all remind us that the experiences we provide in classes must not only be rigorous, but they must also motivate able learners to challenge themselves to reach higher levels of understanding; indeed, to engage in inventive thinking.

"The experiences we provide in classes must not only be rigorous, but they must also motivate able learners to challenge themselves to reach higher levels of understanding."

Providing opportunities for inspiration

If we hold ourselves accountable to raise the intellectual bar for our students by providing opportunities for them to reach their talent potential in our secondary schools we must answer a few questions. How is it possible to encourage creativity that leads to inventive thinking in 50-minute (or whatever your class length is) increments each day? When do students have the time necessary to mull over an idea and give it adequate time to develop? Is this possible in the confines of the AP curriculum? How do I challenge students to think critically without squelching creativity? How do I encourage my students' ideas that may be great? Regardless of my lesson plan for the day, do I plan time for relevant questions from my students? In fact, do I require questions from them each day?

We have to inspire an inquiring atmosphere if we want to foster curiosity in our students. I strongly believe that creating an environment for ideas is essential in secondary schools—in all disciplines. Over the years I have noticed that students pick up subtleties in lectures, discussions, lab experiments, assigned readings—in almost any well-developed lesson plan, and often serendipitously. Since the kernel idea that inspires further thought is different for each student, providing variety in each class is important—whether the variety comes in the form of different processes, forms of content, or forms of products assigned or self-initiated by the students. The environment must also be conducive to invention, sending the message to students that inventive thinking is a value of the school.

Subotnik, Olszewski-Kubilius, and Worrell (2011), argue that

> "…opportunities provided by society are crucial at every point in the talent-development process. We argue that society must strive to promote these opportunities but that individuals with talent also have some responsibility for their own growth and development. Furthermore, the research knowledge base indicates that psychosocial variables are determining influences in the successful development of talent. Finally, outstanding achievement or eminence ought to be the chief goal of gifted education. We assert that aspiring to fulfill one's

talents and abilities in the form of transcendent creative contributions will lead to high levels of personal satisfaction and self-actualization as well as produce yet unimaginable scientific, aesthetic, and practical benefits to society" (p.3).

In order to provide opportunities that lead students to outstanding achievement or eminence, schools must allow time for the pursuit of self-directed experiences beginning in the upper elementary grades and extending through middle school to high school. Being "Chronically Curious" and "Driven to Discover" (mottoes advanced by The Ohio State University and the University of Minnesota respectively) should be our mantras as we seek to encourage, not stifle, inventive thinking. ■

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Write for THP

Do you have practical classroom applications of current research, theory, and best practices in the field of gifted education? Are you proud of the innovative way you address the needs of gifted students in your school or classroom? Have you created a successful lesson or unit plan that aligns with the revised NAGC *Pre-K-Grade 12 Gifted Programming Standards*? If so, we want to hear from you! Send manuscripts to: Jeff S. Danielian, Editor, THP at jdanielian@nagc.org.

So You Think You Can Dance!

By Gail N. Herman, Lesley University
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When my 16 year-old grandson decided this year he wanted to become a dancer, I knew dance had hit the charts in a big way. Given the popularity of prime time dance contests and video games with dance themes, I thought I would share some ways to incorporate dance into an elementary or middle school environment. For some gifted and talented students, exposure to this callisthenic art form lends itself to the positive release of energy, creative thinking, and group dynamics.

The "group" dance: A Copy Cat exercise

Whether teaching physical education, an enrichment cluster, or after-school program in movement arts, or a Saturday school or summer camp class, introductory activities like Copy Cat can help beginning dancers practice simple choreography with simple transitions and movements. The movements are created by the teacher and so the role becomes encouraging groups of students to make decisions about dance attributes such as sequence, timing, number of repetitions for each movement, focus, and forcefulness (dynamics). Copy Cat exercises can be used with any genre of music and with any large group of students. Think Macarena or Cotton-Eyed-Joe!

The name & movement dance: A 6-step process

Name and movement dances are fun to participate in. Primarily used as warm-up activities or ice breakers with large groups, the activity presents the dual nature of oral communication and physical movement. It allows for the students to get up and move! Here are some simple instructions to get you going.

1 **Instruct** students to "create a movement for their name" and then group the students by fours or sixes, depending on your total class size. Examples of these movements might be spinning both arms in a circle and then raising them above the head, or lifting a leg and then spinning around at the same time.

2 **Have** the students decide on an ordered sequence in which they will say their names as they perform their movements: first, second, third, etc. Be sure the groups have space in the room and understand they will perform in that space where they are practicing.

3 **Once** the students have decided on an order for presenting, they are instructed to decide how many times to repeat a particular name/movement. Some groups run through everyone and repeat the entire sequence while others choose to complete multiple movements throughout.

4 **After** a bit of practice the students are then instructed to decide the volume levels (high, low, medium), timing (will they slow the name-movement down or speed it up), force (will it be intense and loud or light and softly spoken), and focus (will they face in or out, up or down) for a particular movement. This may take extra instruction time but it is worth it for the final product.

5 **Finally**, ask the students, "How will your piece end?" Ending their piece might involve a crescendo (becoming stronger) or diminuendo (softer), a chorus of sound from all participants, or even a singular movement and sound from one or a few of the students.

6 **Allow** all groups to share their work. Instruct them to face the class in a line, circle, or a semi-circle. Remind them that being a good audience is just as important as presenting.

I usually start off the sharing by saying, "Who is ready to share their movement-name sequences?" Everyone turns toward that group and watches from their practice space. Usually one group is eager to begin, which motivates the others. If you do have a group or individuals who are uneasy about sharing, try to point out different levels, movements, energies you noticed in their practice. Mentioning what you saw in practice will validate their efforts and build confidence.

A creative extension to the name dance

The class can also use movements to "fit" any poem selected by the teacher or the students. The creativity concept of forced connections, a technique that forces us to see connections where none were apparent upon first glance, connects beautifully to this lesson. After studying the poem the teacher says, "Who has a movement from our name dance that might fit for this word (or phrase)?" The teacher, if needed, should be prepared to demonstrate some examples. Students could also be instructed to create new movements for the selected text.

An example from a line of the poem "Jabberwocky" found in Lewis Carroll's *Alice in Wonderland* follows with the illustrated "text"-movements below.

Activities with a focus on dance can serve as the perfect introduction to the art form, not only to a host of students who are excited about dance, but to those who have never given it a thought. Lets's listen to what popular culture is telling us…dance is exciting and fun! ■

Arms cross in front And raise upon 'brillig'		Then arms come down in snake-like fashion From high to low		Arms wave out to sides
'Twas	brillig	in the	slithy	toves,

Engaging QRriosity with QR Codes

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At some point recently, you undoubtedly have come across one of these mysterious looking black and white squares, and looked inquisitively at this strange marking, contemplating its purpose.

A QR code (abbreviated from Quick Response code) is a type of matrix barcode that is readable by any smartphone or Digital Information Device (DID) with a camera and a free downloadable app. By scanning the code, your DID will open a webpage, play a video, or display a message.

Create your own QR Code

Most often QR codes are used to provide additional product information or to display a company's website, but I began to wonder about using the codes for educational purposes. Instead of leading students to a corporate site, what if they were to create a QR Code that would link them with our own class home page? I have used bit.ly to create a QR Code (left) to my personal website. While bit.ly is primarily used as a URL shortening service, it also automatically generates a QR code for every web address that it shortens for you. To view the code, click on "Info Page+" located just to the right of the newly created shortcut. You will then be able to use the QR code as you would any image file.

Another option for creating your own QR codes is KAYWA (http://qrcode.kaywa.com). An added feature of this generator is the ability to link not only to a URL, but also to display text, call a phone number, or send a text message. By using the display text feature, a teacher could create an automated answer sheet for students to scan to check their results. This could offer the solution to a brain teaser or a riddle. For example, scan this QR Code to find out why the Pirate went to the Apple store.

Using QR Codes creatively

Now that you know how to create your own QR codes, begin thinking of some creative ways that you could utilize these in your teaching. Here are some ideas to get your started.

Create a QR code with a link to video from Khan Academy (http://www.khanacademy.org) and insert it on a math assignment that will provide scaffolded instruction for students learning to use the quadratic formula. Students will view a short video providing guidance on the topic.

Turn any book into an interactive book with QR codes. Say your students are reading Markus Zusak's *The Book Thief*, scan this code to view the location of the Dachau Concentration Camp. Similarly, you could create a QR code with a link to a video, webpage, or activity.

Label objects in the room with QR codes to link to voice notes that translate the object's name into another language. This would be great for ESL students learning English, or gifted kids learning Mandarin.

Create video explanations of learning centers in the classroom. Rather than using valuable class time providing the same instruction multiple times, record yourself once and create a QR code for your students to scan with their Digital Information Device. Students will be able to watch you give instructions and even be able to pause and review as needed.

One of my favorite educational uses of QR codes is the Periodic Table of Videos created by The University of Nottingham (http://bit.ly/qrtable). This is a collection of short videos that display and provide background on each of the 118 known elements of the periodic table. To see why Potassium is considered an "evil" element be sure to scan the QR code.

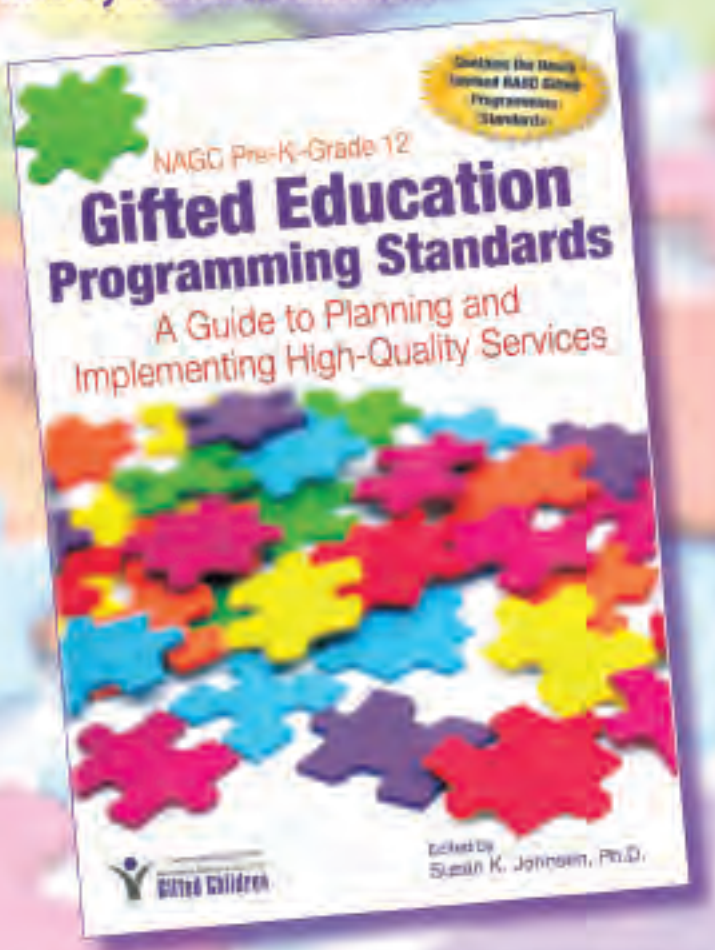
Some notes on scanning QR Codes

To read a QR Code, you will need to install an app. While there is a multitude of options, I have utilized three different free tools on various devices. The Barcode Scanner by the ZXing Team for Android devices (http://bit.ly/qr-barcode-scan) and Scan by QR Code City for the iPhone, iPad, and iPod Touch (http://bit.ly/apple-qr-scan) have both proven to be efficient and effective tools for reading QR codes. A third application Google Goggles http://www.google.com/mobile/goggles is available for both Android and Apple devices and not only reads QR codes, but also allows the user to use the camera and subsequent image as a search tool. I encourage you to explore Google Goggles if you haven't used it before.

Although the technology is new and there are certainly some minor bugs to be worked out, QR codes provide an exciting tool that can be easily applied to many pre-existing lessons and classroom exploration.Many of our students carry cell phones capable of accessing the Internet, and as more and more schools invest in technology tools like the iPod Touch and iPad, we must continue to explore creative ways to use technology for meaningful educational experiences. ■

NAGC Pre-K-Grade 12 Gifted Education Programming Standards: A Guide to Planning and Implementing High-Quality Services

Edited by Susan K. Johnsen



The NAGC Pre-K-Grade 12 Gifted Education Programming Standards are focused on student outcomes that address both cognitive and affective areas. Aligned to each of the outcomes are research- and practice-based strategies known to be effective for this special population of students. The book:

- Details six standards that address the areas critical to effective teaching and learning, along with suggestions for implementing each one.
- Includes sample assessments of student products and performances, which will assist schools in developing program and service evaluation benchmarks.

This book is a must-have for school leaders and gifted education professionals who want to offer the most effective services for gifted and advanced students.

While standards may be addressed and implemented in a variety of ways, they provide important direction and focus to the endeavor of program development. Grounded in theory, research, and practice paradigms, the preK-12 standards provide an important base for all efforts on behalf of gifted learners at all stages of development.

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