

Best Practices Case Study

Susan Sherwood, June 2009

Oliver W. Winch Middle School Science South Glens Falls Central School District

School Context

The village of South Glens Falls, in Saratoga County, is 18 miles north of Saratoga Springs, known for its spas and horse racing. Nearby are Revolutionary War sites such as the Saratoga Battlefield and Fort Ticonderoga. And in South Glens Falls itself, one can find Cooper's Cave, popularized in James Fenimore Cooper's *Last of the Mohicans*.

Economically, South Glens Falls residents have lower household median incomes than their neighbors. In 2007, for example, the estimated South Glens Falls median household income was \$40,120, while in Saratoga Springs it was \$57,256; the New York State median was \$53,514ⁱ. This disparity between the two cities is reflected in the free or reduced-price lunch rates in each: In 2007-08, fifteen percent of the students from the South Glens Falls Central School District were eligible for free or reduced-price lunch, while only 9% of the students in the Saratoga Springs district were eligibleⁱⁱ.

Nevertheless, the South Glens Falls district has a history of academic distinction. Students at the Oliver Winch Middle School are consistently high achieving on the New York State Intermediate-Level Science Examination. The most recent results indicate 95% of the middle school students taking the exam met or exceeded the state standards.

Student Demographics 2007-2008: *Oliver W. Winch Middle School, South Glens Falls CSD*ⁱⁱⁱ

	Oliver W. Winch Middle School	South Glens Falls Central SD	New York State
% Eligible for Free Lunch	9%	10%	36%
% Eligible for Reduced-Price Lunch	5%	5%	8%
% Limited English Proficient	0%	0%	7%
Student Ethnic/Racial Distribution			
% African-American	1%	1%	19%
% Hispanic/Latino	1%	1%	21%
% White	98%	98%	52%
% Other	0%	0%	7%
% Students Meeting or Exceeding State Standards on Intermediate-Level Science Examination	95%	94%	71%
Total Enrollment	828	3,330	2,741,385

More broadly, Oliver Winch Middle School has been identified as a School to Watch. This venture, sponsored by the National Forum to Accelerate Middle-Grades Reform, recognizes middle schools that maintain high academic standards, provide developmentally-appropriate opportunities, are egalitarian, and maintain a common vision and purpose.^{iv} These schools become models for other reform-minded middle institutions.

The staff of the middle school have also embraced New York State’s “Essential Elements of Standards-Focused Middle-Level Schools and Programs,” recognized by the National Forum to Accelerate Middle-Grades Reform and mandated for middle schools by the New York State Board of Regents. The seven elements include:

1. a developmentally-appropriate philosophy and mission;
2. a standards-based, integrated, and rigorous curriculum;
3. school structure that addresses students’ academic and personal needs;
4. developmentally appropriate instruction provided by talented and learned teachers;
5. strong leadership that enables these reforms;
6. educational and emotional assistance for students; and
7. collaborative, relevant, and focused professional development.

The principal of the middle school noted,

We were at the forefront of implementing the Essential Elements in New York State, so we were involved in that from the get-go. Implementation of the seven essential elements in the middle schools was a priority for us. We got involved in that process and from that got involved in the national foundation to reform middle schools, the ‘School to Watch’ program. We have been designated twice, with their criteria, as a successful school. It focuses on the academic, social, and emotional well-being of kids in the building. That’s how we’ve chosen to define success.

A Closer Look

What factors have contributed to the success of Oliver Winch Middle School students’, particularly in science? A recent two-day research visit, comprised of teacher and administration interviews and classroom observations, noted four reoccurring themes:

- a supportive school climate for students and staff;
- a thriving professional environment;
- an understanding of the nature of science, including foundations, connections to the real world, and student interest; and
- recognition of the importance of variety, in terms of learning activities, materials, and assessments.

All of these contribute to success, which the assistant superintendent defines as: “The ability of students to graduate from high school or do post- secondary work, whether that be employment or careers. It has to do with students’ connection to the school and family connection to the school community. There’s no greater feeling than when someone who . . . has been successful comes back, and they come up to you and thank you for all that you’ve contributed.”

School Climate

I think we have an incredible school climate. I think people like to . . . come here to work everyday. I think we have a great reputation in our community; parents respect and appreciate our school. I think our students like to come here to school every day, and it’s because of the relationships that they develop with the adults in the building. Somebody comes in with a cast on or a new haircut; everybody notices those types of things. We talk about establishing relationships with kids.

The middle school principal, describing his school’s climate, continued: “Every morning, the assistant principal and I welcome the kids right out of the gate. My assistant principal goes down in the back, and when the bus doors open, he’s back there. So every kid gets welcomed every day to the building. I think that the teachers do that as well in the classrooms. Those types of connections add a level of support when kids need it most, which is in the middle school.”

Support for the student begins at arrival and continues throughout the day. Teachers seek to build nurturing relationships with their students. As one science teacher related:

I try to build a personal relationship with them, a teacher-student relationship. . . . I’m very motherly. I call them in on my planning period; we have a ninth period which is like a resource/study hall time. After school I’m always available to the students. I try to get involved with them on a personal basis. I talk to the parents at home; I’m emailing constantly. I just try to assure them that I’m always there to help them and to gradually get them through whatever difficulties they’re having.

At the middle school, helping students involves knowing them both as individuals and as adolescents. One special education teacher, when asked for advice to help other schools improve student success in science, suggested, “I think it’s really getting to know your students. If you can get to know your students, what their skills are, what their abilities are, their strengths and their weaknesses. I mean, you can work wonders with that. They recognize that you know what they’re capable of, and that you’re either trying to get at their level, or you’re trying to get them to the next level . . . that’s huge.”

It is important for all students, whether in special or general education, to believe they are valued. The middle school is a large building, accommodating over 800 students; it would be possible for unmonitored students to slip through the cracks. The assistant superintendent recognized this: “I think the key to working with young people, sounds a

little hokey, perhaps, but the key for me is when the student really believes and knows that the teacher cares about him or her. I don't care if you're the top end of the class or struggling academically. When the student knows that the teacher is there for them and has an interest in their life, it breaks down that barrier and makes that connection. Whatever the 'it' is, it's something very special. That's when you can get the best out of your students."

An example of attention to individual student needs was evident during a classroom visit. The students, who had been studying invertebrates, were observing live and preserved specimens and recording data. Students who were concerned about completing the assignment independently were invited in during 9th period study hall for individual assistance.

Though it's clear that teachers seek to address the strengths and challenges of each student independently, it is equally apparent that the staff strives to understand adolescent development. Students enter the middle school from different elementary schools; in a few years they will depart for the high school together. A great transition will be needed, as the middle school principal indicated: "We have 800 adolescents that come here every day. [Laughs.] I would say that maintaining a program that's developmentally responsive to them as individuals, as team members, and as members of the school community and the community at large, is a challenge. . . . We're transitioning kids into this building. We say to the parents: 'Our purpose here is to take your kids from one of our four elementary schools and, in three years, make them into students who will be successful in high school, and can earn credits toward graduation.' That's a relatively short period of time to do that. . . . Our 6th grade doesn't look like our 7th grade doesn't look like our 8th grade. There are similarities, there are consistencies, but each step along the way is a little bit more developmentally appropriate for that student."

A classroom teacher commented on the challenge of working with pre-teens and early teens, especially those who have struggled in the science classroom: "being positive, too. I think so often kids, by the time they get to 8th grade, feel downtrodden about their own ability. I like to, when I present new material, try to start at a place that everybody gets. It works well for physical science, in particular. If I hold a ball up, they can all feel successful that they know what's going to happen if I let the ball go. Explaining *why*; I think that's my job. . . . That hits everybody across the board. . . . I think that's a great way to reach everybody, but, in particular, students who have had adversity in the past."

The concerned climate extends beyond the school walls into the community, as well. The role of the school has transformed over the last few decades, as summarized by the superintendent of schools, "Years ago . . . I think the direction was: 'Well, I will go to work, and I will be working in the paper mills for my entire life. That will be my career.' Education may not have been a priority. But times have changed, and the complexion of our entire district has changed and continues to change. . . . I think [the importance of education] is understood today more than ever before, and it's affirmed by the college

selection. We have some kids that have made some wonderful university/college selections, and I think it's a learning challenge for all of our community members to realize the importance. I don't think it's going to be a quick change, but it's certainly on the forefront."

The middle school principal is one of several staff members who, after being raised in the district, moved away as an adult and subsequently returned. He has noticed the changes within the South Glens Falls community as well:

I think we're a community in transition. I grew up here. I went away [and] was a teacher someplace else. There was an opening for an assistant principal's job in the building I went to school in; I somehow landed back here. . . . When I was a kid this was definitely a blue collar, paper mill-type of community. With the Northway [highway] expansion . . . we've got some transition going on.

We have a new type of community member. I think it's a nice blend. There are clearly high expectations but not to the level of being invasive. A good number of our community people trust our educational program and trust that we're able to deliver what we say we're going to deliver. They'll come in when we need them. They'll approach us when they think they need to.

We have a real nice supportive guidance model where parents can come in and meet with teams of teachers any time. . . . I hardly ever hear a teacher say, "I can't believe that parent won't talk to me, won't work with me."

The superintendent believes that one reason for the community cooperation is the district's talented and dedicated teachers: "There is the unique situation in our school district. A school with one of the highest poverty levels has shown the greatest academic improvement. It goes back to the inspiration and resourcefulness of teachers."

Professional Environment

The rich professional environment at Oliver Winch Middle School includes teacher teams and professional development opportunities. There are subject area teams (e. g., all science teachers) and academic teams comprised of teachers of mathematics, science, ELA, social studies, home and careers, and special education. Additionally, in some inclusion classes, science teachers work so closely with special education teachers that they become a co-teaching team.

Subject area teams are valuable because they allow teachers to share materials and ideas relevant to their discipline, as one teacher related: "The collegiality amongst the five of us, you can't ask for much more. You really can't. 'I need this.' Cut, paste, bang, take. Take. Take. You change what you need to change. 'Mr. X, I'm taking your name off this.' 'I don't really care.' Seriously: take, use, help, ask questions, come in, clarify."

Curriculum coordination is enhanced with subject area teams. One teacher explained the process and the results and camaraderie generated: "I have to say that the reason for

those [high intermediate science examination] scores is because we work collaboratively, professionally from 6th to 8th grade. We have subject area team meetings. We go through that core curriculum, and we make sure that every aspect of that curriculum is being covered in 6th, 7th, or 8th grade. We share materials. We make sure that if something is being taught in 8th grade, maybe 7th grade wouldn't go into too much detail. We really share so much. I think that's the reason for the success. I can't say that it's any thing that one person does for those scores. It's because we work together. It's just incredible how we all work together so painlessly. It's actually fun."

"We try to use the same words, *manipulating variable*, *responding variable*. If someone is using *independent* and *dependent*, and then students get to 8th grade, and this teacher is using different words, students might get confused. I think that collaborative work with the teachers is the base, the foundation."

Academic teams may have a different purpose, but they are equally important to the teachers. Such teams encourage interdisciplinary work, which was identified by the teachers as a pathway to enhance relevancy and encourage student interest. A science teacher spoke of trying "to make learning meaningful from science to math to ELA. [Students] were reading a book in ELA about diseases, and we were learning about diseases in class. Pulling those connections together for the kids. Their mind isn't, 'Okay I'm in science class. Now I'm in math class.' The learning should connect."

Academic team members have a common planning time weekly, but we were informed they often meet more frequently: "We're not required by our administration to meet every day; the teams in this building are required to meet once a week. We've chosen to meet every day. We have common planning time all the time. . . . It's wonderful. I can't tell you how happy I am in this school and how blessed I am with my team. We work together. We've done several interdisciplinary projects like the Hudson River. We do a fun fitness fair; we do a multicultural unit. We do several things."

Co-teaching has become more prevalent at the middle school. Science and special education teachers learn each other's strengths and weaknesses and combine skills to create exceptional learning experiences for all students. One team interviewed conversed about the advantages for students and of their struggles to find the right level to benefit both regular and special education students:

It was a struggle, trying to figure out what level to bring it to.

He was a little bit wordier than I would have liked.

I may have been. And so, at that point, I just asked myself, am I on an island here, or do I have somebody to help me that I believe in? So that's how we develop most everything. I'll go, 'Here it is,' and she'll go, 'Here are some changes,' and she would email them back. We didn't just change them for certain kids; we changed them across the board. Because if I was too wordy for

her [special education] kids, guess what? I was too wordy for a third of my kids, too.

Most interviewees highlighted the importance of time for teachers to work together to improve instruction and solve problems; they also often recommended this for other districts seeking to improve student performance in science. One teacher suggested, “Encourage your teachers to meet everyday. I think the best thing that happened in my career is the people I work with, that they’re all so caring about students. They all have their different fortes. The fact is that we meet every day, and we can nip problems in the bud or work together to stop problems. I think administrative support to give teachers time to meet together and the flexibility is vital.”

Teachers have other opportunities to work with their peers other than in teams; professional development is supported within the South Glens Falls District. Often it occurs at faculty meetings, as one teacher revealed: “Our faculty meetings have turned into professional development; it’s very interesting.” Another adds,

Our principal has encouraged us to think outside the box with our faculty meetings. [Over the summer] we all got smart boards; it’s this huge blackboard, and right in the middle is a smart board. I’ll be honest, when I walked in in September I said, ‘Oh, my goodness,’ because I didn’t know anything about smart boards. For one faculty meeting, all the teachers were invited to share their smart board activities. So we went from classroom to classroom, and we looked at everybody’s idea on smart board. It was fantastic. A simple thing like putting a timer up on a smart board. I could learn and watch and use it so much better.

She also reported that another faculty meeting had been devoted to differentiated instruction, a district-wide initiative.

Out-of-district conferences are encouraged as well, as long as funding is available. One science teacher listed some of her opportunities: “Every year, I go to the trout conference. Not only do I get my trout eggs, but it is a full conference. . . . Also, there’s a [New York State] middle school conference every fall; we usually go. My team usually presents; the last three years we’ve presented. . . . I’ve gone to the museum in Albany for conferences, BOCES . . . lots of conferences.”

The South Glens Falls administration encourages cooperation, collegiality, and peer teaching. It’s viewed as not only essential for teachers but advantageous to the overall goals of the district. The assistant superintendent acknowledged: “I think embracing professional learning communities is important, to get the dialogue. Across elementary schools and across disciplines and between buildings, between high school and middle school, and middle school and elementary school. Working on all those transitions is important to systemic change.”

Nature of Science

What does it mean to learn science? What is important for students to know and be able to do? Why should students study science? The members of the science department at Oliver Winch Middle School seem to share a philosophy that answers these questions.

Foundations. The teachers believe that students need foundations in science, both in content and skills. One teacher outlined this: “I really see it as a 100 level class. I like to try to touch the surface of what they’re going to see in the high school: content, skills, and labs . . . so they won’t be shocked when they get there. . . . We try to really focus on being specific for earth science and being specific for bio, because that’s the next year or two for our students.”

Content is important for all students, in both general and special education, especially in light of the intermediate and high school state assessments. A special education teacher shared: “I’m really here to make sure that they get the content that they need in order to be successful in the high school. We’re always looking ahead; we’re always looking to the future. We want to prepare them now for what they’re going to encounter with all the high stakes testing.” Teaching this content is not easy; there is a great deal of information to impart to sometimes reluctant students. As one science teacher observed: “They’re at that age where they’re a little immature still, and these new concepts are very challenging for them. So I repeat things, spiraling throughout the course of the year.”

Scientific processes should be just as important as content knowledge, one science teacher declared: “I like to focus on skills and process because that translates beyond whatever class you’re taking next year. Being able to measure and to do some basic math skills and some basic measurement with balances, microscopes, things like that. If we can get the skills, it sets them up to be successful in the future.”

Providing these fundamentals in science at the middle school level is critical, since science programs in elementary schools can be lacking, the principal noted: “I think the goal should be foundation building. I think it’s the first time. My assistant principal was an elementary school teacher, and he reminds me all the time that science is something that elementary teachers get to when they can in a lot of cases. We teach science every day in 6th grade, 7th grade and 8th grade. So I think it’s our job to establish a foundation for students to have success when they start earning credits towards graduation at the high school level, and, perhaps, go into science careers.”

Student Interest. The principal continued his description of the middle school science program by describing how the teachers encourage the learning of content and skills by connecting to students’ natural interest in science: “It’s always amazing to me that young kids naturally love science and, somehow, along the way they end up not having that love of science. I think it’s our job to continue to make sure that kids at this level know that science is what the world’s all about. I think our teachers do a pretty decent job with that with the hands-on. . . . I always keep saying to my teachers, ‘Shame on

you if you're not bringing the outside world into your classroom,' because it's there for the taking."

One teacher reminisced about her time as a student and how that memory impacts her teaching: "[There's] such a difference between high school, middle school, elementary school. It's almost like they're different professions, really. I'm so happy that I got into the middle school setting. Sometimes I still wonder why, because they probably were the worst years of my education. I hated middle school; it was so difficult. Maybe that's why I like it so much now: I feel like I can make it exciting for kids. It's a hard time emotionally and socially. I'm teaching about invertebrates right now. Do the kids really want to learn about sponges and jellyfish? Really? So I try to make it exciting for them. . . . I just want to have them enjoy it and retain the basics to carry that on."

One prevalent perception throughout the interviews was that student interest could be heightened through the employment of hands-on activities. Every science class observed had a hands-on component, to varying degrees. As one teacher opined: "Make it fun. I think science lends itself to so many fun activities. I understand that it can't be fun all the time, but it really lends itself to so many hands-on activities. . . . I think you can even make a dry topic interesting if you use the right venue. Utilize technology, utilize your local resources, and stretch your imagination a little bit. Incorporate art, incorporate music, that type of thing."

Connections. Teachers at Oliver Winch Middle School believe that science lends itself to interdisciplinary learning and that this aspect can motivate students. One teacher provided an example from her classroom through which she tries to pique interest by offering a variety of hand-on activities and different ways to explore a topic:

For instance, in this wetland project that we do we acquire the background knowledge we need about wetlands, and then the students choose an animal, insect, or plant to research. Wetlands are endangered, so most of the time, the organism or animal they choose to research is endangered. Then we incorporate reading and language arts because they're researching the topic; they're creating a brochure. We sculpt the animal, so they're also getting their hands in the artistic end of it. We even incorporate phys ed. We take a hike on the bog trail. We use a lot of outside resources. We hold outdoor labs at a pond. Just varied activities so students at all levels can explore the topic and gain an understanding of the key concepts.

One of the most-cited interdisciplinary connections was literacy. A regular and special education teacher refer to the class they co-teach: "Literacy [has] got to be number one. I mean, so much of the content, if you can read the multiple choice question and understand what it's really asking you, so much has got to do with literacy," says one. His partner continued, "which gets back to the vocabulary that we do. It's so content-specific that if they don't have that basic understanding of the words that we're

speaking, they're not going to be getting any of it. I'm constantly pushing literacy and, really, the vocabulary aspect, too."

Relevant connections are not just between science and other content areas; learning science also helps students obtain life skills. Most of the interviewees specified similar life skills they hope to instill in their students through the study of science. One teacher explained: "My goal is more manners, politeness and getting work done. I think that is very, very important. All students must use manners and appropriate language in my room. We all care about one another and no put-downs. I'm a very strong believer in the middle school philosophy." A special education teacher added some essentials for her students: "For me, it's a lot about responsibility and being a self-advocate. For my students, a lot of times, they'll just not want to be noticed. [I want to see them] becoming self-advocates as they're growing older, making sure that if they're not understanding, [they take action], making sure they're confident enough in themselves to be able to raise their hand, ask for a little bit of extra help, seek help on their free times. You know, a real well-rounded person."

Another real-life connection for students to recognize is the presence of science in their daily lives. Scientific literacy will enable them to evaluate news and data and make informed decisions. An observed lesson on biomes provided students with the opportunity to link the lesson to their lives. During a discussion, the teacher told the students that they would be taking a field trip to a deciduous forest. The students were instructed to stand up and look out the back window, as the teacher raised the blinds. While viewing the trees on the school property, the class continued its exploration of deciduous forests.

The assistant superintendent of schools summarized the relevancy component when speaking about priorities for the district: "Look at student success in the areas of literacy and talk about literacy across content areas. Connected to that is having students see the rigor, relevance and connection to what they are learning in school to everyday life. That's where they have lifelong learning: when they are able to make those connections; see the relevance of what they are doing in the classrooms to their futures."

Variety

While talking with teachers at the middle school, it became apparent that they were open to innovation. They would not be complacent, using the same techniques and materials year after year. Variety was evident; variety was crucial.

Learning Activities. Hands-on activities are important, but if a goal is to encourage student success on high-stakes tests and in future science classes, other approaches are necessary, one teacher recounted: "We introduce the topic, usually with some sort of demonstration and some sort of visual. Then we will read. Oftentimes, I have them read silently, and then we will read together and discuss the issues. We learn how to read a textbook in science. That's a major skill: looking for the key ideas. . . . We have vocabulary studies, so I pick out the key words; they define them. We might play a game incorporating those words. They always have a guided note sheet. Instead of taking

notes directly from a board, I give a guided note sheet that we will go through, and we fill in key ideas. We always have a lab to support, a hands-on lab that they're in charge of, a student-directed lab."

As previously mentioned, interdisciplinary approaches are important to these teachers, who often meet in cross-content teams, as one teacher illustrated: "I feel it's not just the science content I'm preparing them for: It's math, ELA. Those are the big tests we also take. Requiring complete sentences, reading to the students, requiring them to read articles and do oral presentations. I listen to NPR, and a lot of times I'll play an NPR short article based on science. I'll ask them to either discuss or answer some questions, because there's a listening part on their ELA test."

Variety is also achieved through tapping local resources. A teacher recalled some field trips her class has taken: "The community is great. There's a wetland preserve right . . . over the bridge. I take the students, and we do a scavenger hunt in the park where they check off wetland things that they're seeing. I bring the microscope; we test the pond water. There are lots of different things that we do; we set up five different lab stations. That's using something local where they can go with their family on a weekend and explain what they've done."

"The Lake George association also offers a great field experience for the students. It's called 'Glass-bottom Boat.' At a very low cost, you can . . . take groups of students on the boat, and they actually test water and do all sorts of experiments on the boat with microscopes. They talk about the watershed, our impact on the lake, that kind of thing."

Including multiple learning activities is beneficial for all students, whether in special or general education. A science teacher in a co-teaching team asserted: "Hear it, see it, think it, write about it, do it, practice it. Always. Everything. Don't see it once, don't see it twice, don't see it three times, don't see it five times. Then it's easy. I hand them a test and they say 'Well, that was easy.' It should be easy. We'll do the notes. So they'll hear it, they'll write it down, a lot of times fill in blanks, whatever. They'll do a homework assignment on it, where they have to think beyond what we did. There's always content that is covered in the lab somewhere. . . . Students are not robots; they're not computers. Just because you download something doesn't mean it's there. Do it and see if they get it. Then do it again and see how many more people get it. Do it a third time and do it differently. Don't do the same thing nine times."

Materials. In order to undertake a variety of activities, a variety of materials are required. Certainly there are the traditional lab materials, but there are creative manipulative materials as well, such as models and specimens. A teacher described these: "Lots of hands-on things. I have a case of preserved specimens that I'm always passing around, especially now with doing the invertebrates. Kids bring in things. Someone brought in a crayfish; someone brought in a centipede. Bringing real things into the classroom is important. I have lots of preserved material and a lot of models."

Teachers look to many sources to receive guidance in identifying and locating appropriate materials, as a teacher shared: “I go to many conferences; I go online. I host a student teacher almost every year. They are a wonderful source of new information and new ideas. They get me up to speed with the Internet, different places to go.”

Most interviewees at Oliver Winch Middle School mentioned the need for textbooks, paying close attention to the reading level and sometimes using guided notes to accompany the reading assignment. Technology is also a major component, especially the 177 recently installed smart boards. Each class visited incorporated the smart board into a lesson in some way, such as using a timer to switch stations, providing the students a hands-on opportunity to demonstrate learning, and viewing an Internet clip on animals.

The co-teaching team compared smart boards to their former method of writing on the board:

This is the first year we've had [the smart board], so it's been a lot of work to convert things, but it's been extremely worthwhile work. Not just because of being able to go and get new things, but helping old things work better. We do guided notes, and we used to have to check: did everybody put the right word on the right line? You're looking at twenty five papers!

And I'm writing on the chalkboard. . . . I'm keeping them all on task and putting all the words down. . . .

Now, 25-minute notes turn into 18-minute notes. . . . Fifteen-minute notes turned into 10- minute notes.

And it's a lot more interactive.

Way more interactive.

It gets the kids more drawn into what you're doing because it's right there; it's in front of their faces. . . .

Built into it, thread right into it. Got to get a smart board. Love it. Need it. Wish I had it when I first started teaching so I didn't have to convert everything this year.

Assessment. Teachers at the middle school use various materials and activities; they also employ a wide variety of assessments, both formative and summative. Certainly there are the traditional labs, homework, quizzes, unit tests, midterms, and finals, but instructors monitor student understanding on a daily basis, as one teacher pronounced: “When you asked about our assessments, I thought, ‘Every second looking out at the classroom.’ You can pick it out after you’ve been doing it for a

while. Those ten kids get it; she's confused. Those five kids get it; he's confused. Go where you're needed, and challenge the kids that need to be challenged and interested."

A barrage of assessments includes daily observations, monitoring content and organization of science notebooks, discussions, and active involvement during the daily team study hall, about which one teacher says: "Team study hall. I share ninth period with my students. I don't go to study hall with work to do. Well, I do, but then I never expect to do any of it. I'm always walking around helping the kids, usually with math, not even science. . . . But that's a huge, definite informal intervention."

Whatever the format, the critical idea presented by the teachers was that assessment be continual; teachers wanted to be aware of what students were achieving moment to moment, as a special education teacher stressed: "How can you teach without asking questions? It's always a little bit of review in the lesson and putting that question out there to the whole group. . . . Staying in constant communication with each other is huge. Just seeing the kids every day. If you're looking at their work, you know what they need. That's the bottom line: constantly looking at what they're doing, and listening to their conversations. We jump in when necessary."

Conclusion

Students at the Oliver Winch Middle School in the South Glens Falls Central School District have achieved consistently high results on the state Intermediate-Level Science Examination, despite a challenged local economy. They have improvement plans, as well. Recently, they began a curriculum mapping process that will eventually include all subject areas, K-12. There will be content and skills assessments and alignment to the state standards. The middle school principal related the ongoing work that is intended to bring student learning to an even higher level:

We are in the process of mapping all of our curriculum in the district. Not just . . . the curriculum in a notebook in my office or on a shelf someplace. The type of dynamic curriculum mapping that we're doing now, in the long term is going to lead to real consistency in learning expectations for our students. It's exciting to watch. It's a lot of work. There's an awful lot of time and energy going into this.

This is really a teacher-driven initiative, and the teachers were on board from the get-go. I hear a lot of districts, when they start mapping, teachers say, "They're forcing it on us." Ours had the opposite response. We wanted to start with a small group and . . . then go on to the next group. Everybody came out and said, "Well why can't we do it? Why aren't we on board here?" That's been pretty exciting, and I think that's central to everything that we are doing now. If we do that right, then I think that initiative will drive everything else that we do.

Such focus and enthusiasm were apparent during the recent study visit. This drive helped explain the successful approaches employed by the staff:

- a school setting where students and staff feel comfortable and valued;
- a professional climate that is collegial and supportive;
- a student-centered science program revolving around basic content, real-life connections, and personal interests; and
- teachers who are able to address students' varying learning and assessment needs.

**Oliver W. Winch Middle School
99 Hudson Street
South Glens Falls, New York 12803**

http://www.sgfalssd.org/education/school/school.php?sectionid=8&sc_id=1193838410

ⁱ Income figures are from www.city-data.com.

ⁱⁱ <https://www.nystart.gov/publicweb/District.do?year=2008&county=SARATOGA&district=52180001000>.

ⁱⁱⁱ Demographic data are from the 2007-08 New York State Report Card (<https://www.nystart.gov/publicweb/AllDistrict.do>). This case study was conducted in spring 2009 as one of a series of studies conducted by Just for the Kids-New York since 2005. For the study of middle school science, research teams investigated seven consistently higher-performing and three average-performing schools based on student performance on the New York State Intermediate-Level Science Examination in 2006, -07, and -08. Researchers used site-based interviews of teachers and administrators, as well as classroom observations and analyses of supportive documentation, to determine differences in practices between higher- and average-performing schools in the sample. In 40% of these schools, the percentage of students qualifying for free or reduced-price lunch exceeded the state average. Average-performing schools were matched as closely as possible to the higher performers in terms of student poverty levels, geographic location, size, and student ethnicity. In 2009 Just for the Kids-New York changed its name to Know Your Schools~for NY Kids.

^{iv} <http://www.schoolstowatch.org>.