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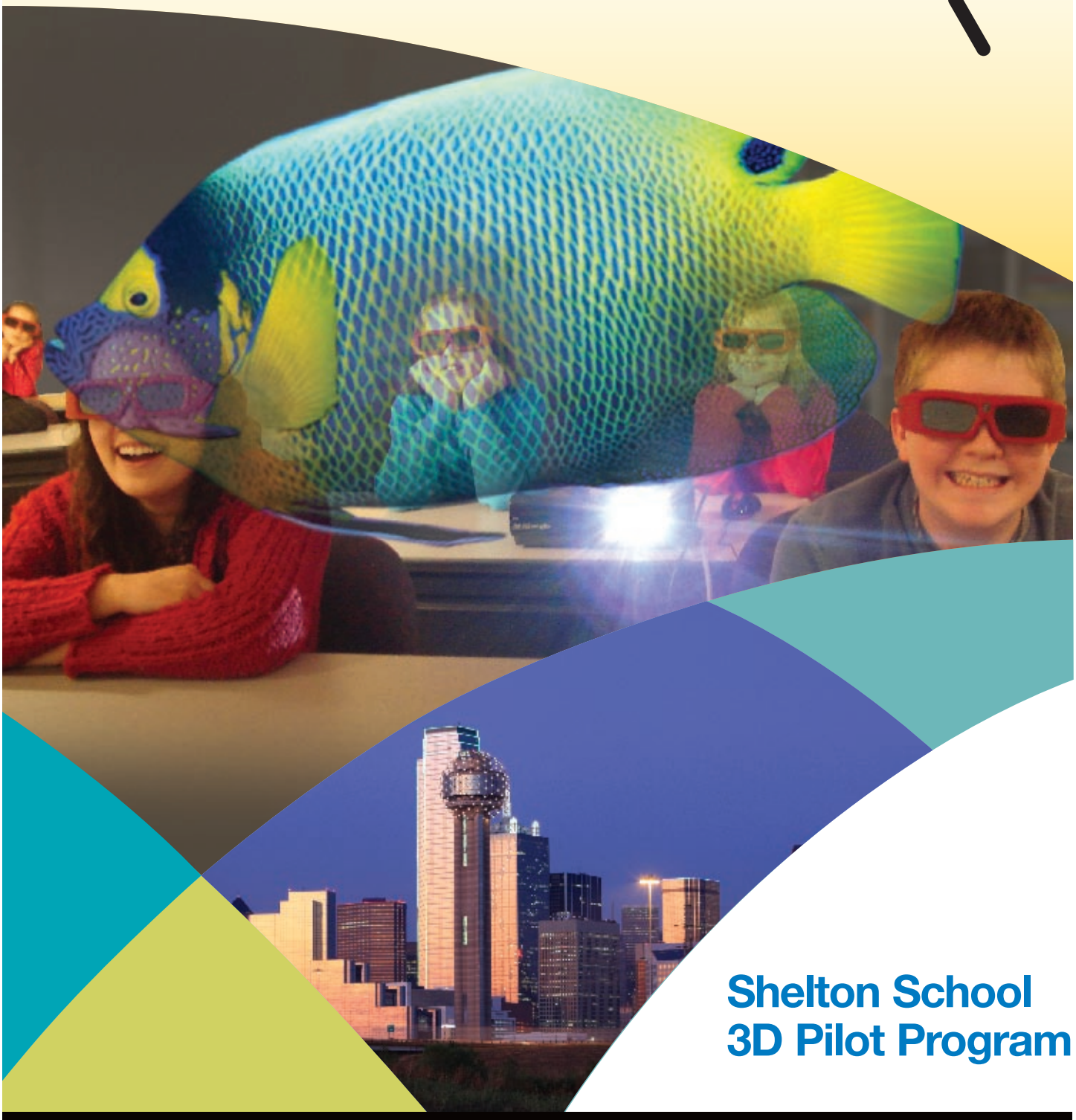


Shelton School 3D Pilot Program

Texas Instruments

Texas Instruments DLP® projection technology earns high marks from classroom teachers in pilot tests

3D Displays Create Greater Student Enthusiasm and Higher Scores

Ask almost any teacher and you'll get a consistent viewpoint: abstract concepts are often the most difficult to convey and explain – particularly in lower grades. And for students, these topics can be among the most challenging lessons to grasp – often leading to frustration and disengagement. Now, thanks to advanced DLP projection technology from Texas Instruments, classrooms are harnessing the power of 3D projection to take a variety of lessons to entirely new levels – literally adding a new dimension that creates engaging and effective instruction on challenging subjects.

The DLP 3D display captures the attention of students – bringing the "wow" factor from the movie theater to the classroom - and creates an immersive environment in which students can learn more and retain that information from clear and vivid presentations.

A 3D-ready DLP protector typically costs no more than a standard 2D projector used in classrooms today and, unlike other 3D technologies, only one projector is needed to create vivid 3D imagery. DLP 3D-ready projectors – available from a wide variety of manufacturers - function normally as regular 2D projectors and switch to play 3D content and back again.

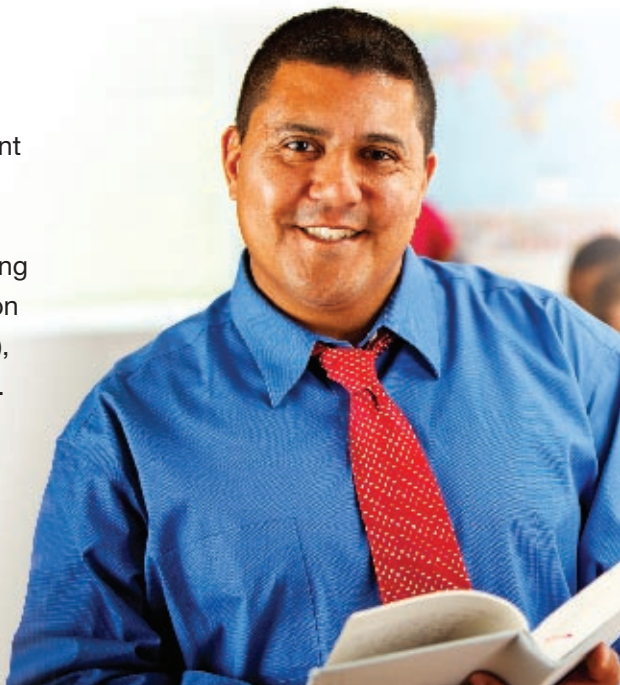
"Even at that rapid pace, we saw excellent results"

At Shelton School, the nation's largest private school serving learning-different students, the goal is to provide the best individualized education path for every student. The school provides learning-different children a full, effective curriculum through individualized, structured multisensory programs. Major learning differences include dyslexia, attention deficit hyperactivity disorder (ADHD), and speech and language disorders.

The school completed a one-week pilot test to explore the possibilities that a 3D curriculum can provide in middle-school math. According to Lauren Sanders, a math teacher for students in fifth and sixth grades, the trial was a tremendous success. "Our school caters to students with learning differences and we've made a significant investment in various learning technologies," she said.

What Students Say About Texas Instruments' DLP 3D Technology

- ***"It gives you education in a fun way."***
- ***"How can you not pay attention when it's coming right at you?"***
- ***"I'm able to visualize. I understand more than in a textbook."***
- ***"If you see every angle, you get more of an idea of what it is. You understand better."***



"We've used interactive whiteboards for years, for instance. We wanted to see if 3D projection could make us even more effective, so we delivered three lessons on volume, symmetry, and solid shapes over the course of one week. It went very well.

"The kids were thrilled to participate and loved the Xpand glasses – they thought they were very cool. Our school has many students with ADHD, but I found that my class was much more focused when we introduced the 3D lessons. Usually, I get lots of questions through which they confirm their understanding of the material and the processes. But this time, I received far fewer questions – they were more patient and eager to explore the content." "The rotational symmetry portion was very good in 3D since that's hard to re-create on a two-dimensional flat surface. Volume was also good because they could see complex shapes broken into cubes. Then we'd compute the volume of each cube and then add up the results to get the total volume. That was really helpful."

Typically, Sanders and other teachers at Shelton teach a topic over the course of a week. The second week is devoted to mastery and in the third week, students are tested on the material. "This was a much quicker pace, compared to our usual rate," said Sanders. "But even at that rapid pace, we saw excellent results."

Steve Robertson, statistician for the Shelton School research team, analyzed test scores for the pilot program, noting improvements in test scores of students in the 3D classroom. He compared the improvement in pre- and post-lesson test scores, finding that students in 3D classrooms generally saw score improvements over students who were taught in Shelton's standard curriculum and with standard instructional methods.

"For all three subject areas - volume, symmetry, and solid shapes – the test group achieved consistently better scores than the control group," he said. "The effect of the 3D curriculum on instruction was meaningful compared to our standard instruction with interactive whiteboards. I can only speculate that the score delta would be even greater in classrooms that use standard whiteboards or chalkboards today. Now, there are certainly some constraints in our study – particularly with our small sample sizes – but it certainly encourages us to want to explore greater use of 3D at Shelton."

Once the pilot was complete, Sanders realized that the "control group," which hadn't received 3D instruction, deserved a chance to see the lessons delivered in 3D. "I asked them, 'Looking at this, are the concepts clearer?' and it was a real 'A-ha!' moment for the kids. One of them said to me, 'Oh – so that's what you were trying to do on the whiteboard.' With 3D, it just all clicked, which was neat to see.

"3D can be an important component of teaching – but there still needs to be a good complement of styles and tools. I can't envision teaching a 50-minute class solely in 3D. It has to be intermixed with manipulatives, the whiteboard, discussions, and examples. That also keeps the novelty of 3D, which is important."

SHELTON SCHOOL

Classroom3® is a library of 3D simulations for K-12 created by JTM Concepts, Inc., located in Rock Island, Illinois. You can read more about the results achieved using Classroom3® 3D simulations in the Texas Instruments Case Study. For more information on Classroom3®, please contact Tracey Masamoto at 309.794.1057 or visit their website at **www.jtmconcepts.com**.

NEC projector model NP216 was used in this program.
www.nec.com

XpanD was created by industry veterans in theatrical exhibition, entertainment, film production & distribution, and specialty film and digital technologies and is funded by a European investment fund. This broad range of professional entities are the driving force in creating the ultimate Digital 3D experience. Learn more at **www.xpand3dtv.com**.

Materials for this 3D Pilot Program provided by:

Classroom 3

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