



# The **BEACON**

*News from*

## *The Coalition for Excellence in Science and Math Education*

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### **PRESIDENT'S MESSAGE**

#### Generally Speaking

This has been a very busy quarter, and we've accomplished a lot. Most of the work has involved our *favorite* topic – ID creationism, both in New Mexico and around the nation. (More on that below.) But we also got back to some of the basics of helping to improve education in the state, in general. Walt Murfin analyzed performance data versus demographic driven expectations for all schools in the Rio Rancho School system. He also looked at performance improvement over the last two years. We presented his initial performance expectation analysis to the Rio Rancho Schools Superintendent, Dr. Sue Cleveland, and were asked back for an additional presentation to selected administrators, which Walt did. This is a very important part of the CESE mission.

Right now we are not very happy with Policy 401 passed by the Rio Rancho School Board. It allows for the introduction of scientifically misleading creationist material into the classroom. It has not been implemented yet, and hopefully never will be. But we'll keep one eye open, while not losing track of our other goals. These include promoting science literacy among all of New Mexico's population. That means if we can help the state, or a district (like Rio Rancho), to understand how well their programs are working, we shall try to do so.

We celebrated Darwin Day on February 12 – his birthday – as did many people across the nation. We were especially lucky to have Pedro Irigonegaray as our speaker. Pedro is the lawyer who cross-examined the creationist scientists in the Kansas “Kangaroo Court.” Darwin Day was co-sponsored with the New Mexico Academy of Science and the New Mexicans for Science and Reason. The turnout was very good, and the impassioned talk by Pedro was outstanding. If you do not remember, the Kansas school board set up a court-like session in which intelligent design (ID) “scientists” were supposed to testify for ID, and real scientists were supposed to testify against ID. Of course, this was a put-up deal in which the content really didn't matter. Only the *appearance* of hearing “both sides” mattered. The hitch was that the real scientists understood this, and to preclude lending any air of scientific legitimacy to ID, they boycotted the affair. Many were asked, but none came. Amongst cries of “you're afraid of ID,” Pedro cross examined the ID proponents and tore them apart. Well done Pedro – and Jack Krebs of Kansas who helped Pedro with some of the technical button pushing – thank you!

#### ID Creationism

The biggest story impacting science education was almost certainly the Dover, PA, federal court decision in which Judge John E. Jones, a George W. Bush appointee, ruled against

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teaching ID in the classroom. This has been called the “Trial of the 21<sup>st</sup> Century,” much like the Scopes trial is called the “Trial of the 20<sup>th</sup> Century.” After speaking with, and listening to many people fighting for good science, I can say that had any of us sat down and written out our dreamed-of verdict, we probably would not have come close to matching the breadth and content of Judge Jones’ decision. I could not cover the significance of this decision without taking up many pages. The decision itself was 139 pages long!. Judge Jones covered all prongs of the Lemon test (please look it up – a good exercise in learning about the 1<sup>st</sup> Amendment judicial interpretations). He did so from multiple angles and wrote a decision for which all lawyers whom I have heard speak say that this is so thorough that it will be nearly impossible to assail – even outside this one federal jurisdiction. This has had impact across the nation and will certainly continue to do so. I encourage everyone to read the decision. (It’s double spaced for those of you short on time.) **I will email it to anyone who asks.**

In other regions around the nation there have been, and continue to be, on-going attempts to get ID creationism into the schoolroom. This small group of dedicated people, who believe that God only creates in the way they can imagine, are always digging for more, both by lies and innuendo.

In Ohio: the science standards included “critically analyze” associated only with evolution. The board voted 11 to 4 to do away with that particular language and the “suggested” ID-friendly sample lesson plan that went along with it. Dover probably influenced this vote, but politics may have also. It’s an election year. Ohio does have a lot of smart people (good guys) working the problem.

In South Carolina: a legislative subcommittee voted to send the science standards back to the school board because they did not contain language partial to ID. Stay tuned. The people in

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South Carolina fighting to keep science pure are pretty tough!

In California: a local school district caved and settled a lawsuit (shortly after the Dover decision) to do away with ID creationist teaching in the school system and to never bring it up again.

In Florida: a big one is going on. There are too many details to go into, but watch this one!

Finally, nationally: The perfectly good terminology used in science – “critically analyze” – has been co-opted by the ID creationists. They have essentially won the PR war, claiming that wherever this phrase appears in state science standards, it allows for teaching “evidence against

evolution.” Of course we all know that is absurd, but the national newspapers and almost all non-scientists don’t understand that they are being manipulated by language, and not substance. We have probably lost this battle, but will work around it. No matter what is said, these people will twist it. Again, stay tuned.

**Finally**

I want to end on a proper note, as the Brits might say. All-in-all, we’ve had a pretty good quarter year!

**Kim Johnson**  
**CESE President**



**Mathematician Ian Malcolm:**

**"Life will find a way."**

**From *Jurassic Park* by Michael Crichton (NY, Ballantine Books, 1990, p. 45)**



**Mathematician William Dembski:**

**"Life is inherently incapable of finding a way, ever. If Life even appears to have found a way, that shows that a Designer has had to help it along."**

**(Humor - Not a real quote!)**

**TOON BY THOMAS**

## A Funny Thing Happened on the Way to the Legislature

Jack Jekowski

Interim Co-President, NM Partnership for Math and Science Education

***We urge you to read Jack's entire report on these remarkable developments. It's available on our website [www.cesame-nm.org](http://www.cesame-nm.org). The following is an abbreviated version.***

It's been a pretty wild ride since the Town Hall on Mathematics and Science Education wrapped up on Saturday, November 19, 2005. But, one thing is for sure, New Mexico is headed toward a new era of enlightenment and achievement in math and science education....We have emerged from the 2006 Legislative session with a renewed commitment from the Governor, the Secretary of Public Education, the Legislative Education Study Committee, and many, many Legislators that they are going to work to ensure that our children are given the best opportunity to be successful in the competitive world of the new millennium. These policy leaders also recognize that an understanding of math and science education is a key to that success.

### How it all started

The New Mexico Partnership for Mathematics and Science Education (NMPMSE - <http://web.nmsu.edu/~pscott/partner.htm>), with sponsorship through the National Alliance of State Science and Mathematics Coalitions (NASSMC - <http://www.nassmc.org/>), funded by grants from NASA and the U.S. Department of Education, and with the support of many other individuals and organizations, coordinated an extraordinary Town Hall on

Math and Science Education, in November. Held in Glorietta, New Mexico over three days, the event was facilitated by New Mexico First (<http://www.nmfirst.org>) using their structured consensus process. The 100 people that gathered developed eight recommendations for addressing the problems that were identified here in New Mexico and have subsequently been active through an implementation team to take those recommendations forward. More information on the Town Hall process can be obtained from the NM First web site, and the background report can be found at the NMPMSE website (<http://web.nmsu.edu/~pscott/BGFinal.pdf>), or at the NM First Town Hall report website, <http://www.nmfirst.org/townhalls/todate.htm>. The final 4-page report with the eight recommendations can also be found at the NM First website.

### The Evolving Link to a National Agenda

Shortly before the Town Hall, yet another major national report on education and math and science was released by the National Academies of Science entitled "Rising Above the Gathering Storm" (<http://www.nap.edu/catalog/11463.html>). Although not created through extensive new

research, the prestigious group of CEOs, educators, and scientists appointed to examine the status of the nation's economic competitiveness, once again identified math and science education as a key element to the future economic well being and national security of the U.S. . . . Senators Bingaman and Domenici had been intimately involved in the Gathering Storm effort, and as luck would have it, our Town Hall fell perfectly at the right time to allow us to become engaged with their efforts called the PACE Act (Protecting America's Competitive Edge - see <http://www.compete.org/newsroom/readnews.asp?id=340>

### A Surprise Reception for the Town Hall Recommendations

I was asked in Early December to help New Mexico First Executive Director, Barbara Brazil, with a presentation to the Legislative Education Study Committee (LESC).. .I left the meeting somewhat stunned, wondering whether for once we were at the right place and right times with the right ideas. . . .

### Forget "24" - These were the Amazing 49 Hours

What really took us by surprise was that early in the Legislative session, the Senate Education Committee, under the leadership

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of Senator Cynthia Nava, decided to sponsor legislation to implement the recommendations of the Town Hall, as well as to incorporate some existing initiatives that were already on the agenda. . . . The following week, the decision was made on Wednesday to create and sponsor **Senate Bill 551**, the *Math and Science Education Act*. In 49 hours the bill was written, vetted, heard, passed unanimously by the Senate Education Committee, and announced in a press conference with the Governor on Friday morning, after the regular Senate Education Committee meeting. It was almost too hard to believe, but it appeared that contrary to all historical precedent, a new bill, with significant appropriations was being submitted that might actually have a chance to be passed in the same session!

### **The Waiting Game**

Then came the Waiting Game, as we went through the next two weeks of hearings in House Education, Senate Finance, back room negotiations where funding was cut and cut again to \$1.7M, but still with key elements included, such as the creation of a new Bureau at the Public Education Department focused on Math and Science then finally on to the Senate floor. The Bill passed unanimously and was moved to the House. . . .The Intel International Science and Engineering Fair is to be held in Albuquerque in May of 2007 (see <http://www.isef2007.org/>)

### **Disappointment but Renewed Commitment**

But alas, it was after all, a thirty-day session, and there was the Governor's aggressive agenda that many said would have been overwhelming even for a 60-day session. . . . In the final hours of the session S.B. 551 never was heard on the House floor. If a Special Session is called by the Governor, it is possible we will see the bill re-introduced.

### **Laying the Groundwork for Future Discussions**

Throughout this phenomenal period, the discussions prompted me to develop a timeline that portrayed major national task forces and commissions that have examined the growing crisis in education and, particularly, math and science. The chart (not included here but shown on our web site) has created a great deal of discussion. . . . Our latest focus as a result of this is to engage public discussion, stepping back from these findings, and examining the failure of our country's efforts during the past two decades to have any significant impact on improving our education system. . . .Barbara Kimbell and I will be presenting these concepts to the NASSMC annual meeting in Washington D.C. the end of March, and will, on the same trip, meet with New Mexico Congressional staff to help with the drafting of language in the federal PACE legislation.

Remember, it is vitally important for your Legislators and Congressional folks to hear from you individually—there are others out there who during the session sought to kill these bills, claiming that:

***“Secular humanists want to control EVERY aspect of education so ANY challenge to evolution is considered a threat. This newest effort to establish a science & math division in the Public Education Dept and appropriate \$424,000 is an attempt to crush the intelligent design movement with additional propaganda. Resorting to “separation of church & state” is a smoke-screen to outlaw a worldview different than that supported by evolution.”***<http://www.rges.cc/news.htm>,  
**1 Feb 06 newsletter, H 38**

We need to constantly be on the watch for those who would turn back the clock of time a thousand years, and make sure that our children have all the tools they need to succeed, and keep this nation and world free from oppression. The best way to do that is to ensure they are educated and have a fundamental understanding of math and science.

*Jack Jekowski is a CESE board member who may be contacted at [jjjekowski@aol.com](mailto:jjjekowski@aol.com)*

## CAN WE MEET THE OBJECTIVES?

NCLB Requires schools to make “Adequate Yearly Progress” toward eventual goals of 100% proficiency in reading and mathematics by 2014. This requirement holds for all groups of 25 or more students in every demographic group: ethnic groups, economically disadvantaged (newspeak for FRPL), English language learners, and students with disabilities. There are escalating consequences for failure to achieve AYP, starting with a plan to do better in year 1, and culminating with fairly severe consequences in year 6. Those final consequences can include re-opening as a charter school, replacing the staff, being taken over by the PED, and such other governance changes as the PED in its pleasure may decree. If a school achieves its AYP targets in two consecutive years, it can get off the bad list. A school can also be credited if it reduces the fraction non-proficient by 10% or more – the “Safe Harbor” provision.

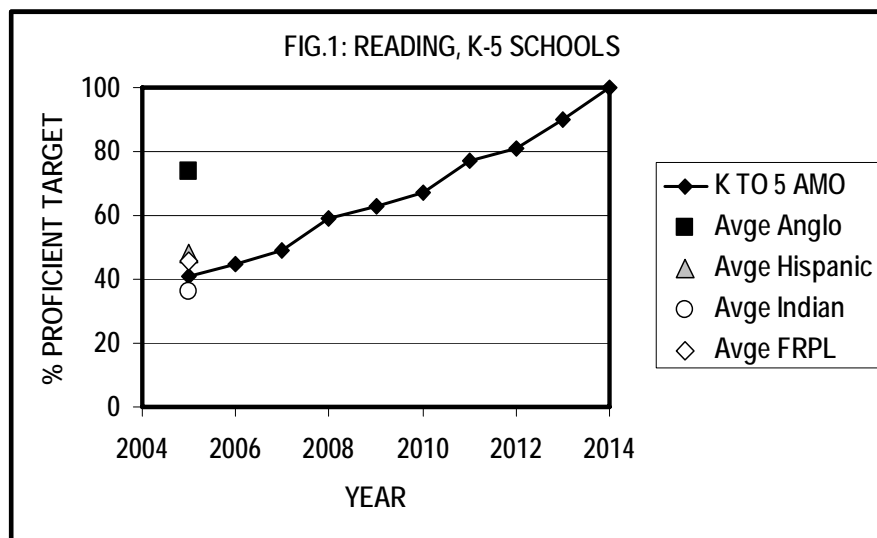
In addition to meeting AYP, the whole school (if N is at least 40) and each subgroup of at least 40 must meet a 95% participation rate. Elementary and middle schools must also meet a 92% attendance rate. High schools must meet an ever-increasing graduation rate – 100 % by 2014.

There were earlier tests of three grades (4, 8, and 11), but the

first real tests were given in school year 2004-05. Even the tests for the grades that participated earlier were substantially changed, and earlier tests don't mean much. The levels reported are “Beginning Step” (newspeak for below Basic), “Nearing Proficiency” (Basic), “Proficient” and “Advanced.” The reported fraction proficient includes both proficient and advanced students. Only full academic year students are counted.

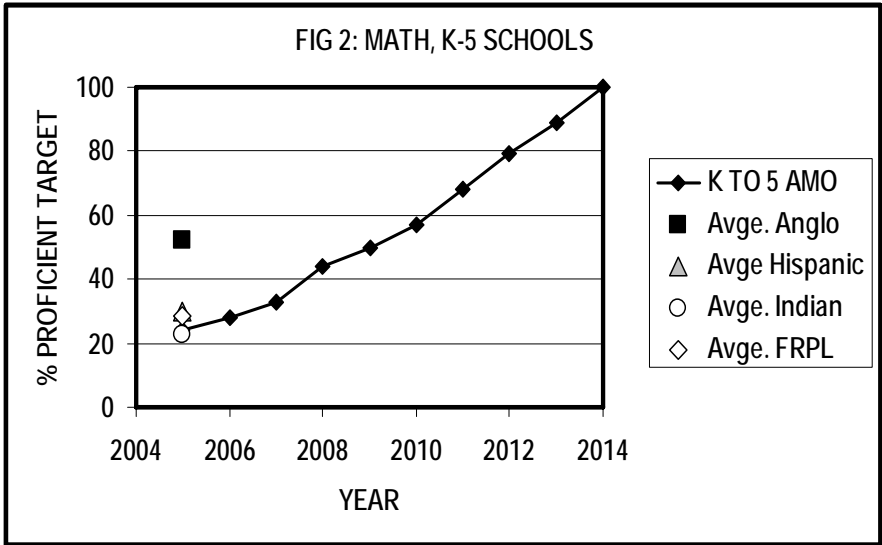
So, you ask, what are the AYP targets? Annual targets have been set for each type of school grade configuration. The most common configurations are K to 5, 6 to 8, and 9 to 12. Those correspond to elementary, middle, and high schools in most districts. Other configurations have been set up to match districts with different schemata. The annual targets are called “Annual Measurable Objectives” or AMOs. If a group equals or exceeds the 99% lower confidence bound for the AMO, it will have met AYP for that year. In 2005, 268 schools out of 737 made AYP. Of the 469 failing schools, 377 failed for low academic performance. 71 of those failed in only one subgroup.

Figure 1 shows the AMOs for reading for K-5 schools. Those unsightly jogs are not an error; they are part of the official table. The figure also shows the average fractions proficient for Anglo, Hispanic, Native American, and FRPL students in 2005. Average Anglo students could just about stand still for six years. Minority and FRPL students already barely have their heads above water. It would take enormous improvement for them to make AYP in the future. I have not shown students with disabilities because they clearly have little chance. Figure 2 shows the AMOs for math at K-5 schools. The chances of meeting AYP are a little slimmer for math.



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The Table shows the K-5 averages for the whole state, for APS, and three other large districts. The figures for the state are simply an unweighted average of the data for grades 3, 4, and 5, and might differ slightly from the weighted averages. Los Alamos and Rio Rancho have more favorable demographics and Las Cruces has less favorable demographics. Both Anglos and Hispanics at Los Alamos have a better chance at consistently meeting AYP than the same groups in APS. The chances at Rio Rancho are at least as favorable as at APS, perhaps even better for Hispanic students. Neither group at APS is conspicuously different either from the state average or from Las Cruces. In fact, Las Cruces did slightly better in spite of less favorable demographics.

Table  
Average Percent Proficient in Elementary Schools

DISTRICT	READING		MATH	
	ANGLO	HISPANIC	ANGLO	HISPANIC
STATE	73.8	48	52.2	29.9
ALBUQUERQUE	74.8	46.3	55.6	30.6
LOS ALAMOS	87.1	81.4	72.7	60.7
RIO RANCHO	76.5	67.5	59.9	45.9
LAS CRUCES	73.9	51.4	56.9	31.4

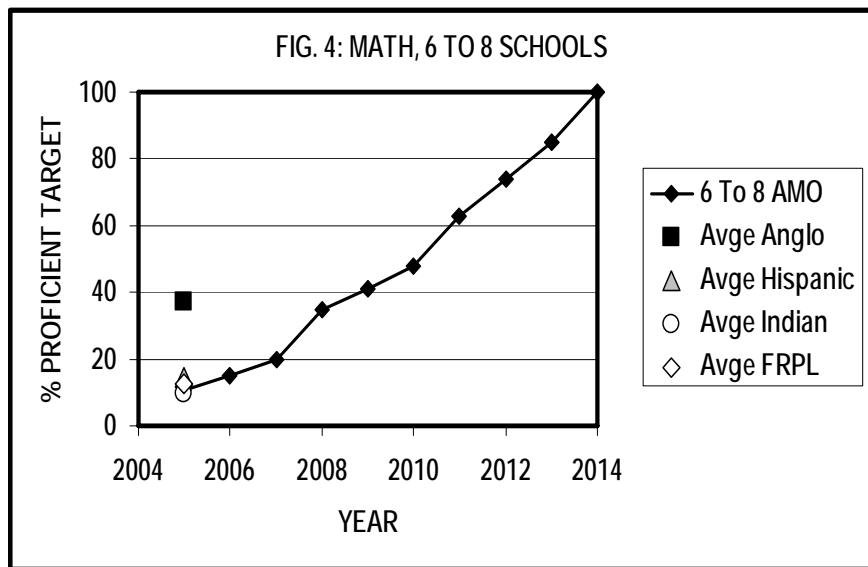
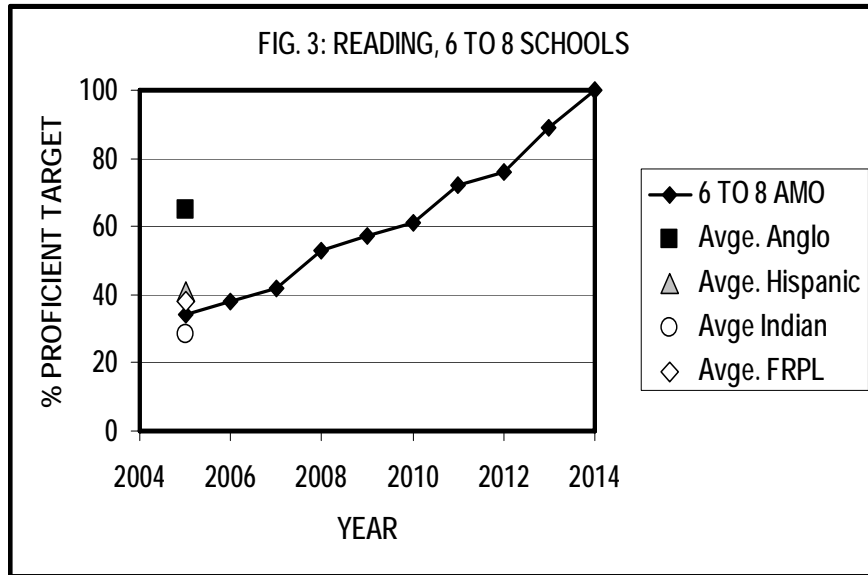
Figures 3 and 4 show the data for 6 to 8 schools. The AMO curve for middle school math is steeper and the 2005 performance was lower. It will be enormously difficult for average middle

schools to meet AYP in math. average. Unfortunately, an equal number is doing much worse. Anglos in some middle schools in 2005 had well over 70% proficient in math, but were below 10% in some schools. Minority and poor students in some schools do very well, even though most are in trouble. A few schools will probably meet the AYP goals with little difficulty for several years, although it is a safe bet that almost none will meet 100% proficiency by 2014 unless the tests are made a lot easier or the cut point for proficiency gets a lot more lenient. That could happen. It is also a pretty safe bet that Native Americans in most schools will have severe difficulty.

The bottom line is that Anglos and Asians look to be safe in most schools for a few years, although some will doubtless fail. There is no history to tell us whether poor and minority students can possibly improve enough to meet the goal, but it would be a reasonable prediction that they will fail in most schools. At any rate, a sane Congress will surely modify NCLB before every school in the nation has failed.

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Walt Murfin  
CESE Statistician



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**(Most of our communication is by e-mail)**



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**YOU'RE INVITED**

**10<sup>th</sup> Annual meeting:**

**Sunday June 11, 2006, 1:00 PM**

**At Either UNM Law Bldg OR UNM Maxwell Museum**

**(See June Beacon for confirmation)**

**Guest Speaker: Nick Matzke**

Nick is with the National Center for Science Education (NCSE). He was the primary technical advisor to the lawyers for the plaintiffs in the Dover trial and was responsible for uncovering key evidence that helped win the case.

He will tell us the inside story about the "Trial of the 21<sup>st</sup> Century." This will be a unique look into what will almost certainly become one of this century's most famous trials, very much like the "Scopes Monkey Trial" is considered the "Trial of the 20<sup>th</sup> Century."

We will also have a contest to see which movie star will play Nick in the almost certain movie reenactment of the trial.