

Mathematically Correct

There is a Mathematically Correct Solution

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August 26, 1997

President Clinton
The White House
Washington, DC

Dear Mr. President:

We applaud your goal of introducing a national grade 8 mathematics exam as a way to stimulate improvement in mathematics education.

In developing such a national mathematics test, it is critical to get the details correct lest the goals be lost. We are seriously concerned that the development of the national mathematics test is flawed and in need of correction. Our concerns are in three areas: The underlying assumptions about what is important in mathematics; the composition of the committee which is writing the test; and the nature of the test itself.

It is clear that the authors of the exam are working under the assumption that there is, or will be, a national consensus that the 1989 Standards of the National Council of Teachers of Mathematics (NCTM) are the appropriate guide for mathematics education in the United States. This is not true. Troublesome issues about the NCTM model are now being raised by committees of the Mathematical Association of America and of other mathematics professional associations. We and many others across the country feel strongly that use of the 1989 NCTM Standards as a guiding document is a serious error which will undermine the credibility and usefulness of the national test.

The committee which is drafting the exam specifications is biased. First, nearly all of its members are strong advocates of the NCTM Standards and of programs that reputed to be aligned with the NCTM Standards. There is not a balance of different viewpoints regarding mathematics education. Second, members of the committee have significant conflicts of interest as they are actively involved in the writing or promotion of particular mathematics curricula. Even the slightest suspicion that the authors would bias the test toward material covered in their programs, or that their authorship of the test would be used to sell their programs or to help them get grants, undermines the credibility of the exam. Conflict of interest protections should be in place for those writing a document as important as the national math test.

The exam itself, at least as represented in the examination plan, is not at all adequate. To be truly informative, the exam should be comprehensive and cover those topics that are important to the future of America. At the top end, it must be sure to meet your call for Algebra for all 8th graders. Thus, the national exam must extend from basic numerical operations (without calculators) through all of the content of a rigorous first year algebra program. The exam fails at both extremes. There is no plan to test

basic computational skills under the assumption that all students will know these things. Unfortunately, this is not true, as anyone who deals regularly with 8th graders can tell you. If we do not test basic skills we will hide from ourselves the extent and range of our weaknesses at the lowest levels. At the other end, in spite of calling 25% of the test "Algebra," the content addressed is not algebra at all - it is not even pre-algebra. By ignoring the demanding content of algebra, the design will fail to measure success at the level of our international competition and will fail to promote greater achievement as intended.

The emerging plan is therefore totally inconsistent with the very reasons for having a national mathematics exam, and is contrary to the needs of our country. As you have committed yourself and the country to the goal of a valuable, meaningful and useful examination of mathematical competence, it falls to you to correct the errors that are occurring in the development of this exam.

Sincerely,

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To: Daryl E. Chubin, Michael Cohen, William R. Kincaid

cc:

Subject: objectives and strategies from yesterday's working group meetin

You will find below a brief summary of the discussion at yesterday's meeting, framed as objectives and remarks about possible strategies. The subgroup assignments should be sent to the full working group by the end of the week, if possible, and no later than first thing Monday morning. If you want to send them to me, I will forward them on to the full working group. From past experience, it seems to work better for transmittal between ED and NSF if documents are copied into the body of the e-mail than when documents are attached.

Judy Sunley

ED/NSF WORKING GROUP

OBJECTIVES and STRATEGIES as discussed at the meeting of April 8, 1997

The working group agreed on the following four objectives as key to the action strategy we are developing. The notes about possible strategies under each objective reflect to the extent possible the group's further discussion of the types of strategies.

The two-person working subgroups are to (a) refine the statement of the objective, if necessary; (b) provide a set of strategies for the objective for discussion next week; and (c) indicate actions appropriate to each strategy. The subgroup should also review the baseline material already provided to ensure that there is good support for the objectives, strategies and actions as key elements of the action strategy.

A number of themes should run through the write-ups as either motivation for the objectives or critical factors in attaining them.

- student motivation
- addressing assumptions about who can learn
- promoting federal/state/local/and private sector partnerships
- enhance coherence of federal programs
- involving professional, mathematical, scientific, and technical communities in a fundamental way

1. Ensure teachers have the content knowledge and pedagogical skills necessary to teach standards-based, challenging mathematics to all children so that by the end of 8th grade they have laid the foundations for the study of more advanced mathematics.

- two basic pieces of strategy: in-service and pre-service
- importance of availability of sustained, high quality professional development
 - train trainers
 - link professional development to materials to be used in the classroom
 - recruitment and certification issues
 - involve higher education in a fundamental way

2. Ensure that all schools, teachers, and students have access to high quality, standards-based instructional materials in their classrooms.

- provide support to schools (districts, states) to help them make informed choices
- provide support to schools (and districts) to help them implement
- encourage public support and demand for high-quality, demanding curricula
- focus on comprehensive, coordinated, coherent set of materials
- quantity of materials may need mention; not critical issue right now; spur private sector development

3. Ensure that all schools, teachers and students have access to high-quality learning and communications technologies that promote instruction and professional development in mathematics.

- research
- testbeds
- innovative implementation in the classroom
- disseminate effective practices in implementation of technology
- improve integration between technology systems providers and schools

4. Engage students, parents, teachers, and the general public by building wide-spread understanding of the necessity of mastering challenging mathematics as a gateway to future educational opportunities and jobs; emphasize that all students are capable of such mastery.

- help make math study more exciting and concrete
- importance of mathematics to future
- educate public on importance of standards-based education
- educate public on nature of appropriate materials and instructional strategies



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May 7, 1997

Dr. Daryl Chubin
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Dear Dr. Chubin,

I am writing on behalf of CBMS to thank you and your colleagues from the DoED/NSF interagency working group for your presentation last Saturday and for the productive exchange of information and ideas which followed. We strongly support your efforts to develop strong federal programs to improve classroom practice and to raise public expectations. We look forward to continuing the conversations and helping to implement the recommendations which will appear in the working group report to the President.

In the set of accompanying notes, I have tried to capture the essence of the comments and suggestions that were made by members of the CBMS Board and Education Partnership at our Saturday meeting. We hope that you will find them helpful in meeting with the working group and in preparing your report to the President. I have also asked Ron Rosier to send you some information about IMO 2001 USA and the United States Mathematical Olympiad and the opportunities these present to focus attention on excellence in school mathematics.

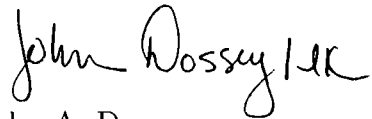
Again, thank you and we look forward to additional opportunities to

Bulk

—

work with you and your colleagues on this most important task.

Sincerely,

A handwritten signature in black ink that reads "John A. Dossey". The signature is written in a cursive, flowing style.

John A. Dossey
CBMS Chair

cc: Daniel Goroff

encl: Notes/Comments/Suggestions to DoED Working Group from
CBMS

**Notes/Comments/Suggestions
to DoEd/NSF Working Group
from CBMS**

The Conference Board of the Mathematical Sciences and its Educational Partnership would like to convey these comments and concerns to the members of the DoED/NSF Inter-Agency Working Group and those involved with the planning and design of the National Eighth Grade Mathematics Examination. These notes reflect comments made before, during, and following our meeting with you on Saturday, May 3, 1997.

Please receive these comments and concerns as constructive suggestions directed toward improving our joint efforts to set high expectations for our youth, to raise the public awareness of the importance of mathematics for our citizenry, and to strengthen the infrastructures supporting the teaching and learning of mathematics in our nation's classrooms.

ISSUES CONCERNING THE PROPOSED TEST:

1. There must be a clear message sent that the National Test is not a post test on basic facts and operations, but rather an examination of whether American youth have reached high levels of expectation consonant with serious secondary school study of mathematics and requisite for developing the additional knowledge and skills needed for later entrance into the workforce. It is important that this test be seen not as a summative test, but rather as a formative test mid-course in their education.

2. Specific efforts must be made to carefully articulate the advantages and the information that the National Test will provide to students, teachers, parents, and schools. There is concern that the National Test may be rejected by schools and others on the grounds that it adds yet another test to a spring schedule that is already overloaded with local district standardized testing, state assessments, and occasional participation in NAEP or other federal assessment programs. Some efforts might be directed to developing a NETWORK similar to that used in the NAEP Trial State Assessment program to communicate that local schools might wish to rethink their use of other assessments in light of the special features of the National Test or to move some of their assessments to the fall of the year.

3. It must be made very clear that the National Test is establishing new specifications and new formats for measuring high expectations, even though it is building on the familiar NAEP content framework. Those familiar with NAEP think of it as measuring status quo, rather than cutting edge. It must be emphasized that this test will set high expectations and that it will evolve over time to keep expectations high, whereas NAEP, in contrast, is locking frameworks in for ten years or so.

4. To ease teacher fears and begin the process of moving students, teachers, and schools toward the goals established for the program, both the framework and information on the format and types of assessments that will be used on the National Test must receive wide dissemination. Once a design has been established, the framework and design must be made known to the nation's middle-school teachers.

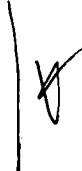
5. We strongly support the idea of a website for dissemination of information about features of the testing program and also about the allied federal efforts to strengthen mathematics education first in the middle grades and then across the full span from pre-school to graduate school. We offer, and we expect that you will make use of, CBMS services to get information out to those in the mathematics community through our member organizations, their listservers, newsletters, and networks.

6. The CBMS societies strongly support the use of technology on the National Mathematics Exam. Students should be able, in the exam, to use the calculator that they use as part of their regular instructional programs. Notification that this will be the case needs to be made soon so that any issues of perceived equity can be dealt with long before the initiation of the examinations. The NCES should make clear, like the College Board, what levels of calculators will be allowed.

7. The role of teachers' involvement in the grading of the extended constructed response items must be carefully planned and promoted. Teacher involvement in this activity can, perhaps, do more than any one thing to establish a clear view of the levels of student performance expected and to transform teachers' classroom actions in support of higher expectations. Specific grant work with the National Council of Supervisors of Mathematics, the Association of State Supervisors of Mathematics, MSEB, and the National Council of Teachers of Mathematics could establish a national dissemination program for helping to reach teachers with programs which develop the skills and knowledge needed to effectively assess students and participate in the marking of the National Examination's open response items.

ISSUES CONCERNING PROFESSIONAL DEVELOPMENT

1. Professional development for middle-grade mathematics teachers must be a high priority and plans must be made to strengthen the current support mechanisms. Programs conducted through special grants (such as that suggested above in item 7), the Eisenhower program, DoED and NSF programs, and local and state initiatives should focus on the expectations and methods of helping students achieve them. Initial efforts may focus on the assessment, but they must be broadened to deal with issues related to curriculum and instruction.

2. Efforts should be made, in concert with the Council of Chief State School Officers, to establish 5-8 mathematics certification programs and special endorsements for teaching at grades 5-8 for those already prepared to teach at the 9-12 level. The 5-8 mathematics teachers need the professional preparation outlined in the *Professional Teaching Standards* developed by the NCTM and the *Call For Change* developed by the MSEB and MAA. 

3. The NSF should publicize its work in establishing model middle school mathematics education programs at the University of Georgia, Portland State University, Michigan State University, Illinois State University, and San Diego State University, as well as on other campuses. Consideration should be given to holding a national conference focused on this topic at which these institutions will share their programs, syllabi, and clinical practices with those from other colleges in order to stimulate a nationwide upgrade in the preparation 

of teachers for grades 5-8 mathematics specialization. The CBMS would be pleased to join with NSF in such an effort.

4. The NSF, in conjunction with CBMS and the appropriate mathematics professional societies, must speak strongly to college and university mathematics departments concerning their important role in the mathematical development of the nation's teachers. It is mathematics departments in which the teachers receive their content, and sometimes methods, courses in mathematics.

5. We wish to emphasize that this focus on the national test is not the only reason for increased attention to the mathematics professional development of teachers. Achieving the real goal of raising expectations and performance depends upon teacher content knowledge, teacher pedagogical knowledge, and teacher knowledge of adolescent learning and development.

ISSUES RELATED TO THE SCHOOL CURRICULUM

1. Again here, we must focus our efforts on the curriculum as a whole, not just on the preparation for the National Test. Teachers, administrators, and others involved in middle grades education in mathematics must be cautioned not to stop the curriculum to prepare for the National Test. A solid curriculum, well taught, is the best method of preparing students. Crash programs are not.

2. Care must be taken to see that the proposed National Test does not lead to the disassembly of already strong curricular programs. For example, schools using experimental programs, or those having eighth grade algebra or geometry programs, should not be given an incentive to do away with them just to return to an eighth grade basal series approach to prepare their students. Again, the best preparation for an examination is a carefully designed, well-balanced, and effectively delivered curriculum over time.

3. Schools must be made to understand that the test is not a reflection of the eighth grade teacher or curriculum. Rather the test must be perceived as reflection of the entire mathematics curriculum pre-school through the eighth grade, and as a signal of starting points for what is to come in the secondary grades. Schools must be encouraged to give attention to all aspects of the K-12 programs offered students in mathematics to see that it affords students the opportunities outlined in the STANDARDS and meets the expectations established by the STANDARDS and the National Test.

ISSUES CONCERNING PUBLIC AWARENESS:

1. The CBMS societies see the need for, and strongly encourage, a vigorous public information and awareness campaign which promotes the importance of, and the need for, a strong mathematics education for all students. Since the real purpose of the President's initiative is to raise the mathematical competency of the citizenry, they must be aware of the role that mathematics plays in their lives and in the strength of our country. We also see a need for public information professionals to help develop the messages so that they have the desired positive influence on their various target audiences.

Such a public information campaign needs to:

- Focus public awareness on the need for strong mathematics programs in the schools,
- Explain the relationship between this need and the quality of our lives,
- Show the nature of mathematical thinking and distinguish between it and the memorized skill and drill features so often associated with mathematical competence, and
- Outline what a community has to gain through educational programs supporting high expectations.

2. CBMS is ready to assist the DoED/NSF Inter-Agency Working Group, perhaps through a consortium of mathematics professional societies, government agencies, and public information professionals, in developing plans for the design of a public information campaign and in the dissemination of such information. W

3. Finally, among the various target audiences, we mention four groups that deserve particular attention:

i) The media. Educating the popular media, even just the “serious” news media, about the importance of high expectations in mathematics and the need for strong mathematics education for all students could go a long way to improving the public perception of mathematics. |

ii) Persons with direct influence in the schools. School boards, principals, and local businesses must be brought into conversations about upgrading math in the schools. The work of successful state science and mathematics coalitions in fostering these conversations must be expanded and encouraged. |

iii) The minority community. An increasing percentage of the students who will be affected by the test are minorities, and minority communities are often difficult to reach by generic campaigns. Enhancing minority participation in mathematics is a major goal of the mathematical sciences community and should also be a major goal of this initiative. Evaluation and dissemination of test results in minority communities must be done in a way that promotes the test “as a pump, not a filter,” to borrow a phrase from the calculus reform movement.

iv) The mathematics community. Public awareness must have a component which focuses on the mathematics community and especially on teachers to make them more aware of the careers and opportunities open to those students having strong mathematical skills, as well as the lack of opportunities for those not developing proficiencies in mathematical areas. CBMS is ready to assist in the development of such a campaign, based on some related earlier efforts we have made in this area. | t



CONFERENCE BOARD OF THE MATHEMATICAL SCIENCES

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lkolbe@maa.org

MEMO

May 7, 1997

To: Daryl Chubin

From: Ron Rosier

CC: John Dossey
Donald Kreider
Carol Shaw
Marcia Sward
Wanda Garner
Gail Burrill
Gerald Alexanderson

Re: IMO 2001 USA and the United States Mathematical Olympiad -
Presidential/Vice-Presidential opportunities for
showcasing excellence in American education

This is a follow-up note to the brief discussions John Dossey and I had with you last Saturday about the International and U.S. Math Olympiads and the opportunities they present for the White House to showcase some of the excellence of American education. I have kept this relatively brief and to the point, but I will be most happy to supply much more information, if you think the opportunities we are suggesting would be appealing to the White House.

Being somewhat unsophisticated in the ways of national politics, but quite excited by the attention being given to mathematics education, I am eager to help in any way I can to see that this attention continues and produces positive results. If you see possibilities in the suggestions on the attached page, please let me know how I can help to make them happen.

**Information on
IMO 2001 USA and the United States Mathematical Olympiad
Presidential/Vice-Presidential Opportunities
for Promoting and Honoring Excellence**

*Announced
yet?*

The United States will host the International Mathematical Olympiad in the year 2001, with over 100 countries expected to participate. This is the premier international mathematics competition for high school students. The IMO is an annual event held each year in a different host country and was last hosted by the U.S. in 1981. U.S. teams have won the IMO four times, including their unprecedented "perfect" win in 1994 in Hong Kong when all six U.S. team members received perfect scores.

To organize and promote this event in the U.S. in 2001, the mathematics community (with \$500,000 in start up funds from the U.S. Department of Education) has formed a non-profit corporation, IMO 2001 USA, whose mission is "To host a prestigious, world class International Mathematical Olympiad in the year 2001 that promotes the spirit of excellence and achievement among all students," a mission very much in the spirit of the President's initiative. We would be most honored if the President, or the Vice-President in his capacity as science and technology point man for the administration, would help to promote this event by giving it public mention.

The high school students chosen to represent the United States each year in the IMO exemplify the best of American education. They not only have great talent, but also have had the opportunity to develop that talent because of the encouragement and the high expectations of their families and teachers. They attribute their success to supportive parents and to the teachers who challenged and encouraged them. This kind of encouragement, support, and high expectation provide the rich learning environment that nurtures the striving for excellence aimed for in the President's initiative.

The U.S. team is selected each year by a series of challenging exams which begin with a pool of over 400,000 talented American high school student taking part, and culminate in the annual USA Mathematical Olympiad, at which the six winners who make up the U.S. team are chosen. These winners are honored at an awards ceremony at the National Academy of Sciences, followed by a reception and dinner at the State Department hosted by the Science Advisor to the President. This year's awards ceremony and dinner will be held on Monday, June 16, with Dr. John Gibbons as host. A brief appearance or public message from the President or Vice-President on this occasion would focus attention on one of the success stories of American education and would send the message that high achievement in mathematics is to be honored like high achievement in athletics is honored.

This U.S. competition and awards ceremony are run by the Mathematical Association of America, at whose headquarters we met last Saturday.



Record Type: Record

To:

cc:

Subject: Voyager Expanded Learning/Randy Best

Awhile back you asked me to look into a letter you got concerning this organization's partnership with the Natural History museum, and the Smithsonian's efforts to put their resources on the Net more broadly. (You will recall that Best suggested a news conference announcing the partnership).

Today I spoke with Robert Sullivan, an Associate Director in charge of public programming at the Smithsonian Institution (SI). He confirmed that the Smithsonian has signed an MOU with Voyager (which has both a for-profit corporation arm and a non-profit Foundation), which has not yet been announced publicly. Smithsonian already has a program, called Natural Partners, a network of universities, schools and the smithsonian, through which they make their data, materials, and scientists available during the school day. Voyager is seen as the way to get into the growing after-school market, complementing their school-day efforts (especially for urban students), and ultimately strengthening them, as parents, teachers and others who have used the Smithsonian resources in the more relaxed and informal after-school setting will then begin to use those resources during the school day. They are currently working on a "beta" version of their web site, which should be ready by September, and on curriculum units, which should be ready by then. He said that they wanted to affiliate with a for-profit to give folks the sense that this is something that would be around for awhile, and with a non-profit so their could be efforts to provide scholarships for low-income students to participate. With Voyager they got both.

SI has a whole educational philosophy which stresses museum-style learning--hands-on, project based, student centered, etc., and they want to promote this. They want to make the Smithsonian available via a range of media--2 way, interactive video, e-mail Q's and A's, voice, etc. (Example: their giant squid web site where kids followed a search for a giant squid, communicating by 2 way video and e-mail with researchers out on a boat). And they want to get teachers to use the Smithsonian home page as the basic home page they use all day--the conduit through which they link into other educational sites. Interestingly for the working group and the directive that NEC put together, they have a strong focus on how to get federal data and resources out to folks--they want to broker for other federal agencies, pre-digesting material and organizing it for teachers appropriate to different grade levels and topics, but then also supplying links to more extended data/info, if folks want to explore. They would literally like to serve as a conduit for other agencies and have been working with NSF on this kind of thing, calling the project "Science on the Mall"--in fact, just recently me with 4 Nobelists in math and science on how to take what they have and make it available meaningfully to support learning.

As for math, he gave me three or four examples of how they could enhance math instruction along these lines. He gave an example of a project being conducted through Ball state where they were specifically asking how can SI resources be used to teach in non-trad ways; in one case, they used a sandollar to teach an algorithm, and kids spent all weekend trying to determine what an ideal sandollar would like--he thinks of this as measuring real stuff. He also talked about using a bear skull to learn about measurements and predictions, and taking kids into the field to show them how geometry is used in archeological sites.

He is going to be sending me web addresses and volunteered to come over and show us their wares.

Although we would have to walk our way through this delicately (because of the for-profit angle that Voyager has, because of the need to work with Kalil/Kohlenberger/whoever is going to be honchoing the internet directive follow-up with ED, because of hidden turf issues that I'm sure are out there, because of the need to make sure that there is some connection to standards), we could do something that focuses on this public-private partnership in a few different ways:

1) something in connection with the math/science action strategy, placing the greater stress on ways this could be used to support math instruction, and focusing not just on the new Voyager after-school initiative but the in-school work they are already doing;

2) something in connection with the response to the internet directive, which might better fit the timeline that these folks have (I think that's a 6 month timeline), or

3) something in connection with after-school, where we could release not just the ED report but also talk about the Voyager project as an example of something that can enrich the after-school learning environment.

There's more details than I could even include here. Let's discuss how to follow up. And let me know if you need a copy of the original letter to you.

Barbara Butler/NSF

Natural History museum --

has made a big commitment in this area--near where elephants are -- on the right -- whole room is high tech learning lab. Connected in with school in LA or AR. Where testing out the communications. Lots of live feeds. Also computer linkages. Thinking about how kids can access databases. How to engage kids in research questions.

Have a number of partner firms.

Robert Sullivan at Smithsonian
Assistant Director in charge of public programming
probably most senior person who is aware
"Sully"
786-2604

Voyager--

important on a couple of levels

working with them and others on how to combine on-line, curriculum and 3-dimensional materials
-- Voyager will encourage the use of objects in class

Not just holdings, but a way of learning that they hope to engender--hands-on, project based, student centered.

Go into after school/extended school market--especially for urban students

Kids paying for, but nothing academic hapenning--

Voyager helps them get to them

Voyager-Smithsonian

After-school--easier to experiment

Voyager now primarily after school--but Smithsonian already has products/services more focused on the school day.

Natural Partners--network of universities, schoools and Sm that is doing learning during the school day--that's how they make materials and data available during the day -- will be made available through Voyaer during after-school hours--eventually will migrate into the classroom.

Goals

Every school teaching like a museum

Smithsonian next door to help

- 2-way video/ interactive

 - ex. In search of the giant squid

 - E-mail q's and a's

 - Download video

 - Digital

 - Voice

Smithsonian Home page on all day

- could use to connect to all other relevant sites you would want

- integrated, quality, easy

- Hot link to NOAA page, etc.

- Broker for other federal science resources

- Typically pre-digested material -- organized data

- Not 8 pages of net services related to volcanos

 - but 20 images, etc. for 4th grade volcano curriculum

 - if you want more, here's where you go.

Have a MOU; beginning to work with and putting together; will have beta site by Sept; first curriculum units being rolled out by then. Voyager is for-profit and has a foundation, Voyager Inc and Voyager Foundation.

L. Schools looking for curriculum/after school materials that will be there for awhile--were looking for a company that was interested in a long relationship.

2. But wanted not-for profit--so you could develop solutions to scholarship kids.

Voyager Smithsonian kids.

Not announced yet.

Jack Gibbons, Henry Kelly, etc. fully informed on project. Interest in digitizing resources.

Anecdotes on Math

1. Ball State Teachers College, districts in several states

Asking how can Smithsonian resources be used to teach in non-trad ways--

Sandollar to teach a logarithm--what would ideal sanddollar look like

measuring real stuff

hands-on, project based, collection-centered

3-dimensional bear skull-

measurements, predictions--bear molar sizes

working with real objects

2. With NSF -- Science on the mall -- how to be a conduit with all of federal government agencies -- most agencies generate knowledge, but not disseminating -- just met with 4 nobel laureates math and science on how we can take what you have and display

3. Take kids into field -- show them how gets applied -- geometry used in archeological sites. Geometric process -- triangulate -- to get there.

What if you had this kind of collection--could you use to teach math?

Another ex: digitized early human material -- produces image that kids can manipulate -- skull -- geometry of interior brain case.

Once you give the teacher the tool, they can use.

Will send me e-mail message with URL's to look at.

703-306-1628
Hyman Field - Informal Science
Ed progr
Barbara Butler
Voyager

Expanded Learning

April 3, 1997

Do ED folks know
about Smithsonian
efforts to put
info on web?

NSF
kw?

Mr. Michael Cohen
Domestic Policy Council
The White House
Washington, D.C. 20502

Dear Michael:

All recent polls confirm that Americans' number one domestic concern is the quality of public education, with 62% believing the quality will get worse not better.

President Clinton has made it clear to all that education is a top priority of his administration. He has also challenged private enterprise and government to collaborate and lend their collective resources to address the critical needs of public education. President Clinton also wants to dramatically increase the proficiency of America's school children in the use of technology in the classroom, especially for less-privileged children of the inner-city.

The National Museum of Natural History of the Smithsonian Institution is responding to the President's leadership and focus on improving the quality of American education by forming a unique partnership with Voyager Expanded Learning to bring the vast educational resources of the Smithsonian to every American elementary school. Inspired by the President's emphasis on education, this initiative will establish a new model for public/private partnerships designed for more effective utilization of existing resources to significantly improve educational quality. Through this public/private collaboration, millions of inner-city school children, who would otherwise never have an opportunity to visit the best-known museum in the world, will have access to the reservoir of knowledge, research, and experiences that the Smithsonian represents.

The partnership anticipates developing and installing an electronic link, through the Internet and by other means, making it possible for school children to interact with Smithsonian scientists in the field around the world. The partnership will develop curriculum and learning adventures using Smithsonian resources through which children will explore the earth sciences, environment, cultures, and the marvels of the natural world. Innovative application of new learning technologies will directly connect these in-school materials with the collections, exhibitions, and educational facilities of the Smithsonian, transforming the Museum from a distant destination for a few learners to a hub in an educational network serving a nation of learners. This creative partnership will also provide an expanded enrichment opportunity for children during out-of-school hours when almost 80% of mothers are working outside of the home. Consistent with the Smithsonian's long-standing commitment to first-hand, activity-based learning, the partnership will also provide training for public school teachers which will help them teach more effectively throughout the school day.

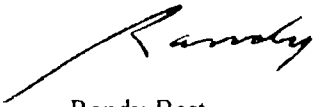
Voyager Expanded Learning, Inc.

3800 Texas Commerce Tower 2200 Ross Avenue Dallas, Texas 75201 214-978-3819 Fax 214-978-3822

Voyager's role in the partnership will be to serve as a conduit for the Smithsonian's resources, bringing them directly into the classroom as if a Smithsonian Museum were next door to each of the nation's elementary schools.

The uniqueness and potential significance of this initiative constitute a perfect manifestation of the President's call to action. His prominence at a news conference announcing this partnership would provide an opportunity for him to recognize its signal importance in support of public education that will considerably expand the educational use of existing governmental resources at no additional cost to the American taxpayer.

Sincerely,

A handwritten signature in black ink, appearing to read "Randy Best". The signature is stylized with a large, sweeping initial "R" and a cursive "andy".

Randy Best

RB:jg

SUMMARY SMITHSONIAN - VOYAGER INITIATIVE

- All recent polls confirm that Americans' number one domestic concern is the quality of public education, with 62% believing the quality will get worse not better.
- President Clinton has made it clear to all America that education is a top priority of his administration.
- The President has also challenged America to dramatically enhance the proficiency of America's school children in the use of technology, especially for less-privileged children of the inner-city.
- He likewise challenged private enterprise and government to lend their collective resources to address these critical issues at an accelerated pace.
- The National Museum of Natural History of the Smithsonian Institution is responding to the President's leadership and focus on improving the quality of American education by forming a unique partnership with Voyager Expanded Learning to bring the vast educational resources of the Smithsonian to every American elementary school classroom.
- Inspired by the President's emphasis on education, this initiative will also establish a new model for public/private partnerships designed to more effectively utilize existing resources to significantly improve educational quality. Through this public/private collaboration, millions of inner-city school children, who would otherwise never have an opportunity to visit the best-known museum in the world, will have access to the reservoir of knowledge, research, and experience that the Smithsonian represents.
- The partnership anticipates developing and installing an electronic link, through the Internet and by other means, making it possible for school children to interact with Smithsonian scientists in the field around the world. The partnership will develop curriculum and learning adventures using Smithsonian resources through which children will explore the earth sciences, environment, cultures, and the marvels of the natural world.

- Innovative application of new learning technologies will directly connect these in-school materials with the collections, exhibitions, and educational facilities of the Smithsonian, transforming the Museum from a distant destination for a few learners to a hub in an educational network serving a nation of learners. This creative partnership will also provide an expanded enrichment opportunity for children during out-of-school hours when almost 80% of mothers are working outside of the home. Consistent with the Smithsonian's long-standing commitment to first-hand, activity-based learning, the partnership will also provide training for public school teachers which will help them teach more effectively throughout the school day.
- Voyager's role in the partnership will be to develop creative in-school materials and serve as a conduit for the Smithsonian's resources directly into the classroom, electronically transporting the Smithsonian Museum next door to each of the nation's elementary schools.
- The uniqueness and potential significance of this initiative constitute a perfect manifestation of the President's call to action. His prominence at a news conference announcing this partnership would provide an opportunity for him to recognize its singular importance in support of public education that will considerably expand the educational use of existing governmental resources at no additional cost to the American taxpayer.



April 2, 1997

Michael Cohen
Office of Domestic Policy Council
White House
1600 Pennsylvania Avenue, NW
Washington, D.C. 20500

Dear Michael: *mike*

I have been impressed by the recent action in the education arena, including more activity in science and mathematics education. Thank you.

I want to raise a few other possible areas for you to consider:

1. The President has proposed "America Reads" as a mechanism for supporting the 4th grade reading achievement goals. I am sure you have considered, some where along the way, the even greater need for an 8th grade mathematics counterpart. "America Counts" is perhaps a more pressing need since most adults are willing to admit broad deficiencies in mathematics, especially around algebra and geometry topics. There are segments of the population that are very comfortable with those topics - scientists, engineers, mathematicians at all levels and students of those subjects. You might want to get the NSF people to think through how such a companion piece might be built out.
2. During the Bush Administration an Executive Order was issued that directed federal agencies, where possible and appropriate, to assist in local science and mathematics education reform efforts. Is that Executive Order still in effect, and, if so, how widely known is this. I have a colleague in San Antonio who regularly used Annapolis grads, who were waiting to begin flight school, as instructors in his minorities in engineering program - smart people, good skills and terrific role models as well.
3. We need a bolder education reform effort that goes beyond the classroom or individual school. We really need initiatives that focus on whole communities (schools, museums, colleges and universities, libraries, other non - profits, business and industry, youth serving groups). This bigger vision is articulated in the report of the Carnegie Task Force on Learning in the Primary Grades, Years of Promise. At least part of this vision can be seen in at least three cities where AAAS has been working to build cross sectoral programming in support of education reform.

We know from experience that it does not take piles of money to support the local planning efforts, training, design and evaluation needed to pull these different parts of the community together. It does take a focusing issue (SMT education, early care and education, school aged child care and programming, etc.) that may be different for each community. Modest federal grants could seed such efforts (or at least their pilots). These need to be offered on a competitive basis and targeted in such a way that they encourage bottom up initiative, public and private sector collaboration.

4. With the emergence of the new technology we really need an infusion of support to libraries. Right now they are struggling to reinvent themselves, to make good on their traditional role as well as to bring the new technologies into play. Perhaps modest experimentation can point a direction for "reinventing the library." I plan to urge the new Carnegie president in this direction as well, given his own interests and background and the strong Carnegie legacy in this regard. The technology side is clearly an area where the federal government can contribute, such as the large issue of data storage and retrieval, in addition to connectivity and access.
5. The verdict is in and overwhelmingly in support of quality early childhood programs. The federal investment goes beyond Head Start and includes the tax credit that is available to middle income people and the early care and education system being supported through the military and by the federal government as employer. I hope that the educational opportunities in these can be seized, and that more coherent thinking about early care and education might emerge under the auspices of the Children's Initiative.

Let's talk soon.

Sincerely,



Shirley M. Malcom, Head
Directorate for Education and
Human Resources Programs



American Mathematical Society

Mila - Fy - G
from Chicago -
B.4

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Hyman Bass, Chair, AMS Committee on Education, and
Professor of Mathematics, Columbia University

James Lewis, Chair, AMS Committee on Science Policy, and
Chair, Dept. of Mathematics, University of Nebraska-Lincoln

April 24, 1997

Marshall S. Smith
Acting Deputy Secretary
U.S. Department of Education
Washington, DC 20202

Dear Dr. Smith:

The mathematical community recognizes the potential of President Clinton's National Test in Mathematics (NTM) proposal to improve American education. In order to make good on this potential, we, representing policy committees of the American Mathematical Society, are eager to work with you in earnest. The test is, at best, only a means to an end. It will require careful planning, consultation, and cooperation for this initiative to have the constructive impact hoped for.

With regard specifically to the draft RFP for construction of the test, we would like to emphasize the importance of broad-based input from professional mathematicians into this entire process. There are serious concerns, for example, regarding the nature and level of the content of the test. Decisions about this will have implications for the entire system of mathematics education. It is in everyone's interest for the test materials to be consistent with expert consensus within the mathematics and mathematics education communities.

The draft RFP does mention an advisory apparatus, of course. We are eager to work through this and other means to make the role of mathematicians in developing the test strong, visible, and meaningful. We would therefore appreciate further details -- in the RFP if possible -- specifying how professional mathematicians can most efficiently and effectively go about this in view of the fast pace of events. If it would be helpful, for example, for our organization to establish an advisory panel on our own that could be charged with reading background material relevant to NAEP, to eighth grade mathematics issues, and other material that you might recommend, we would be pleased to do so. In this way, such a panel could be prepared, as soon as it is possible, to comment on the test specifications, on the proposed advisory structures, and be positioned to provide input as appropriate to the NSF/Department of Education Working Group.

April 24, 1997

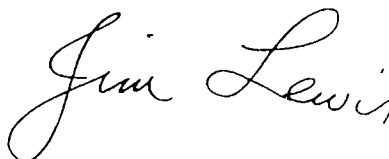
We would also like to be sure that mathematical participation will take place in activities beyond just the development of the test. Those contemplated by the joint NSF-DoED Working Group, for example, are of potentially even greater significance than the test itself. The content preparation of teachers, for example, is a particular concern for mathematicians. We would welcome suggestions for the best and most constructive means for the AMS to contribute to this process, perhaps in consultation with other organizations, such as MAA, MSEB, etc.

Thank you for your attention to these matters. We look forward to discussing and participating in this important work with you.

Sincerely yours,



Hyman Bass
Chair, AMS Committee on Education



James Lewis
Chair, AMS Committee on Science Policy

cc: Helen M. Chang, DoED
Ramon Cortines, DoED
Thomas M. Corwin, DoED
Judith Wurtzel, DoED
Gary Phillips, DoED
Judith Sunley, NSF
Darryl Chubin, OSTP
Daniel Goroff, MSEB
AMS Committee on Education
AMS Committee on Science Policy



KAMER-SINGER & ASSOCIATES, INC.
Public Affairs - Public Relations

April 14, 1997

Michael Cohen
Domestic Policy Council
The White House
Second Floor, West Wing
Washington, D.C. 20500

Dear Mr. Cohen:

As we discussed by telephone in early March and as referenced in David O'Reilly's February letter to Bruce Reed, Chevron is providing a draft letter of official support for Chevron's Best Classroom Practices award for President Clinton's review and signature.

This tangible support from the President will lend prestige to this collaborative educational program -- Chevron, the National Science Foundation, the California Academy of Sciences, the National Science Teachers Association and the National Council of Teachers of Mathematics are cooperating together -- which is designed to improve the math and science performance of America's junior and senior high school students.

You indicated to me that drafting a letter for the Domestic Policy Council and the President's review would be an appropriate procedure to obtain the letter of endorsement that we seek. We would like a signed letter from the President by the end of this week, if possible, because National Science and Technology Week begins April 20 and ends April 26. National Science and Technology Week coincides with mailing "call for entries" information to junior and senior high school teachers across the country.

If you have any questions or require any assistance, please contact me or Sara Dau at (415) 512-6800. You can also contact Nancy Carroll at the Chevron Corporation at (415) 894-4903. Thank you very much for your assistance.

Sincerely,

Michael H. Getto
Kamer-Singer & Associates, Inc.

Enclosure

NSF folks -

ok?

ok to copyright?

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