



STEM OVERVIEW

FEDERAL COALITIONS

NEW TEAM IS UP AND RUNNING

- STEM Office within the Office of Innovation and Improvement:
 - Russell Shilling, Executive Director of STEM
 - Camsie McAdams, Deputy Director of STEM
 - Ellen Lettvin, Robert Noyce Fellow in Informal STEM Learning
 - Julia A. Mundy, APS/AIP/AAAS Science Policy Fellow
 - Suchi Saxena, Raikes Foundation Fellow in Non-cognitive Factors & Learning



MISSION:

Promote student achievement, success, and life-long learning in a dynamic 21st century STEM economy by:

- Maximizing opportunities to excel in STEM education for all students, including pre-k and post-secondary students;
- Inspiring students to pursue STEM careers, including women, minorities, and special needs populations; and
- Fostering innovation in STEM education to produce scalable approaches to improve formal and informal learning environments.



STRATEGY

TO ACHIEVE THIS MISSION, THE STEM OFFICE WILL UTILIZE THREE KEY LEVERS OVER THE NEXT TWO YEARS:

Collaborate on inter- and intra-agency policy & programs to better include STEM efforts in various federal efforts & leverage public-private partnerships

- Continue to promote programs to enhance and improve teacher training in STEM
- Encourage a focus on early learning strategies for STEM programs both inside and outside ED
- Incorporate non-cognitive and informal learning strategies into program development
- Promote greater STEM access and engagement for diverse student populations (minorities, women, special needs)

Identify and promulgate STEM education data and best practices

- Establish the office as a central location to learn about efforts in STEM from both the federal & public domains
- Spotlight key resources and proof points of exemplary STEM work across the country
- Work with partners inside and outside the federal domain to document availability of formal and informal education assets which can be leveraged across settings, including urban and rural environments

Steward the development of structures that help create stronger R&D in technological and non-technological STEM breakthrough innovations

- Push for adoption of alternative research practices formulated to promote scalable breakthrough innovations in STEM programs (10+ year horizon)
- Leverage and seed regional STEM networks/clusters to develop best practices in STEM innovation
- Explore and promote new technology solutions for STEM education, including games/simulations/graphic novels, intelligent tutoring systems/new approaches to personalized learning, and embedded assessments
- Explore and promote synergistic strategies for effective STEM learning across formal and informal settings



ED'S STEM INVESTMENT – PRIMARY EMPHASIS

- Hispanic Serving Institutions STEM and Articulation Programs
- Math Science Partnerships
- Minority Science and Engineering Improvement Program
- Teacher Incentive Fund – STEM
- Upward Bound Math and Science Program



STEM INVESTMENT – STEM PRIORITY

ED HAS USED A STEM PRIORITY IN OVER 60 PROGRAMS

- Career and Technical Education: Basic Grants to States
- Education Research Grants – Effective Teachers and Effective Teaching Topics
- Green Ribbon Schools
- Investing in Innovation
- Magnet Schools Assistance Program
- Race to the Top
- Special Education Research Grants – Professional Development for Teachers
- Supporting Effective Educator Development
- Teacher Quality Partnerships
- Trade Adjustment Assistance Community College and Career Training Grants
(managed by DOL)
- 21st Century Community Learning Centers
- Youth Career Connect (administered by DOL)



INTER- & INTRA- AGENCY COORDINATION IS KEY

- Department of Education does not create curricula
- Pool talents and expertise across agencies
- Maximize resources
 - Small Business Innovation Research (SBIR)
- Internships and training for students and teachers
- Scale, scale, scale!!!



ADMINISTRATION-WIDE EFFORT (COMMITTEE ON STEM EDUCATION – COSTEM)

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Education
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
- Department of the Interior
- Department of Transportation
- Environmental Protection Agency
- Executive Office of the President
- National Aeronautics and Space Administration
- National Science Foundation
- Smithsonian Institution



NATIONAL GOALS FOR STEM EDUCATION

- 1 Improve P–12 STEM Instruction
- 2 Increase and Sustain Youth and Public Engagement in STEM
- 3 Enhance STEM Experience of Undergraduate Students
- 4 Better Serve Groups Historically Underrepresented in STEM
- 5 Design Graduate Education for Tomorrow's STEM Workforce



CHALLENGE TO CONFERENCE

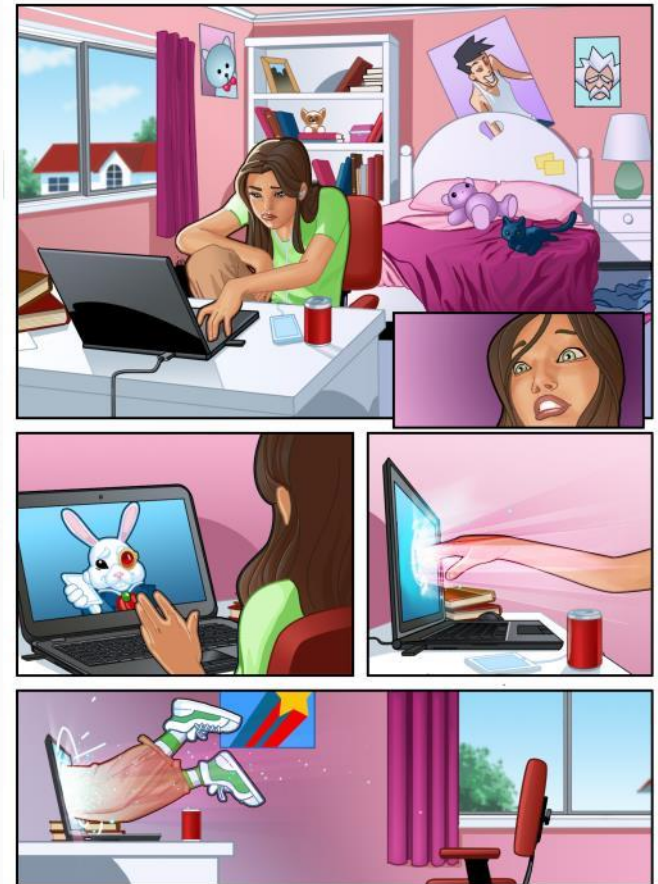
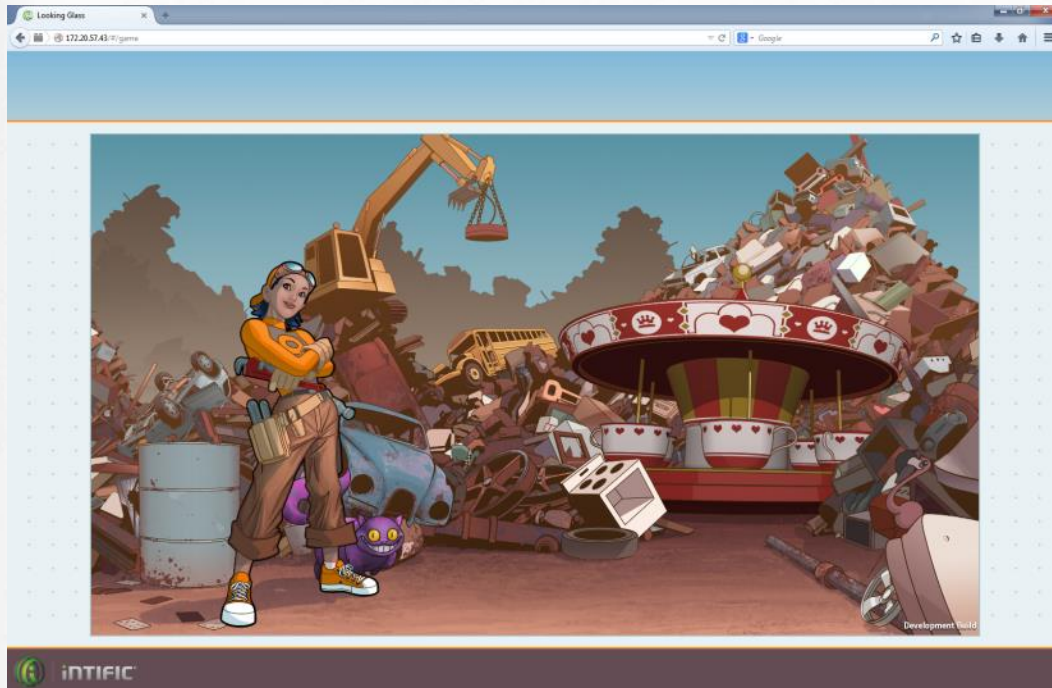
- Clean sheet approach to education
 - What does ideal look like?
 - How do we inspire students?
- Teacher Training
- Inclusive to women, under-represented minorities, special needs
 - How do we get resources to where they are needed most?
- Think broadest grade range possible
- Innovate, validate, and scale!!!



GAMES, GRAPHIC NOVELS, ETC

ALICE: INTIFIC SBIR

- Videogame/Comic Hybrid
- Social-emotional messaging





Click here to play Nanocrafter!

Nanocrafter is a scientific discovery game about synthetic biology. Use pieces of DNA to build everything from computer circuits to nanoscale machines, and help advance scientific research with your inventions!

Latest Activity

Troll Masta 9000 created a new Challenge solution titled Sandbox

Recent News

Have you heard? We're a winner! 12/05/2014 - 10:14
We're not just winners for the usual reasons, but we've also been honored with an award this week from the 2014 Serious Games Showcase & Challenge (SGS&C). Our team won in the category of... [Read More](#)

Get Ready for the Holidays with our Challenges! 12/04/2014 - 14:24
We're bringing some changes along with our new challenges this week, so let's dive right in and find out the scoop.

Our expert level challenges have been tweaked in difficulty slightly, and... [Read More](#)

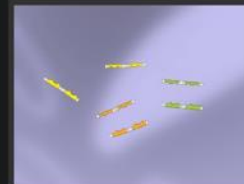
Meet the Team! 12/01/2014 - 08:46
Curious about some of the upcoming changes to Nanocrafter, and our new website coming your way? Come on by Computing Open House this Saturday... [Read More](#)

Check out our Winners 11/14/2014 - 13:08
One of the best things about announcing new challenges (like we did earlier this week) is getting the opportunity to recognize our previous round's winners. Let's take a look at these hard working... [Read More](#)

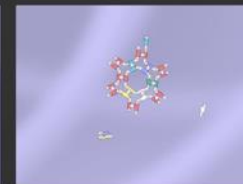
Current Challenges

Challenge Name	Solutions	Top User	Rate
Draw a snowflake!	8	mister-e	Rate
Parsimony	13	mister-e	Rate
Round Trip	4	mister-e	Rate
Expert: Highway Interchange	0	—	Rate

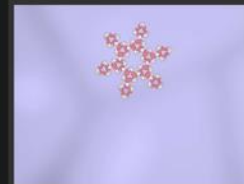
Latest Inventions



Troll Masta 9000
Parsimony



Troll Masta 9000
Sandbox



fayzer
Snowflake



snowboardgirl
Parsimony