



**Asia-Pacific
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Session 2.2

Math Education: Digital Collaboration for APEC

Submitted by: Russia



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APEC
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Math Education: Digital Collaboration for APEC

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**Joint Statement of 5th APEC
Education Ministerial Meeting
(*Envisioning Together for the
Future and Hope, 21-23 May
2012, Gyeongju, Republic of
Korea*):**

“10. The Ministers reviewed the recommendations proposed by EDNET in the priority areas of mathematics and science education, language and culture education, and TVET and higher education quality. We agree on the importance of further refinement of educational responses in the following directions:

- 1) Continue to upgrade mathematics and science education capacity across the APEC member economies. Identify the best practices that ensure students are learning the foundation of mathematics and science and applying this learning to real-world issues, such as preserving the environment, reducing damage due to disasters, and achieving green and sustainable growth.

2) Create an open environment for education collaboration in mathematics and science starting with a joint data-base of mathematical problems, assessments, and evaluation methods.”

The Environment starts with the Bank

- Problems
- Exams
- Evaluation procedures
- Descriptions (meta-data)
- Tools <http://www.whizz.us/>, <http://www.maths-whizz.ru/>] or UMS [umsolver.com] in Russia
- Multi-platform
- Grass-root + domestic entitled bodies
- Student mobility, incl. distant

- **PISA, TIMSS**

- study
- Public reaction
- Adjustment
- Long preparation and analysis

- **Open bank**

- Collaboration
- Public awareness
- Enrichment
- Fast response
- Interactive environment for cooperation

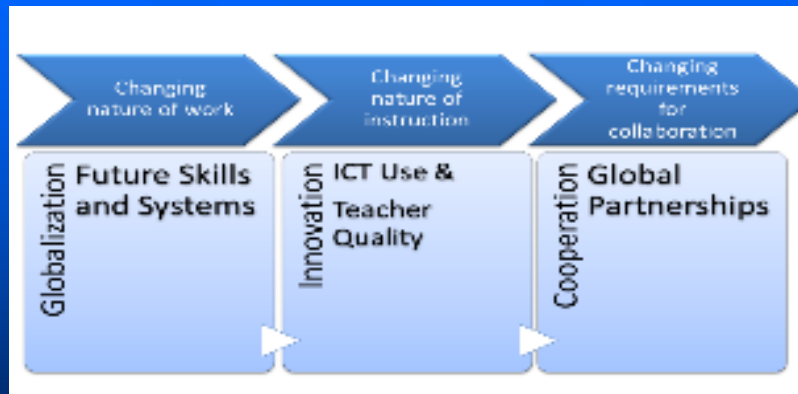
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Sources and previous experience

- Russia – Unified exam
- Australia - Digital Learning Resources
- **EDNET Projects :**
“Quality of Teacher Preparation Project:
International Comparative Research to Identify
Unique and Promising Practices in Mathematics
and Science Teacher Preparation for APEC
Economies”, etc.

The Project refers to the priority themes of APEC



The way Education Network (EDNET) has been and will continue to respond to the rapidly evolving, knowledge-based and globalized economy.

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First steps

- domestic coordinators.
- environment
- international working group
- Prototype
- Multilingual support
- Technical documentation

APEC math quiz

- Problem set
- 1 hour
- Sources: Russia, USA, Thailand

Further developments

- Digital formats
- Science, culture, languages
- Collaborative school projects
(www.globallab.ru/)
- Gifted students
- Comparative research and recommendations to authors, teacher trainers
- Universities and employers

School math in the digital world

- APEC Agenda

“Education must equip the workforce with relevant knowledge and skills for the new economy and society of the 21st century.”

21st Century Skills respond to the “new division of labor” in the 21st Century Economy:

- Technology is enhancing the value of people with higher-level competencies involving data analyses, interpretation, and problem solving.

digitization of primary and secondary education

- Major factor for many processes under discussion
- Phase transition effect – the beginning of Digital Age of school

Goals of school math (1)

- To apply math in various real-life contexts, including one (s)he has never met (“applying to real world issues”)
- To reason (to proof, refute, define, solve, understand, describe, analyze, and interpret) in the style of mathematics (“the foundation”)
- NOT achieved and promoted
- Why?

How to find time?

ICT

- Experiment, discover, invent
- Investigate real world
- Visual math
- Use different representations: video, text, graph, formula

To make it serious:

- High-stake examinations
- Reasoning along with using ICT
 - Proved intervals instead of just rounding
 - Prove of geometry properties instead of just experimental evidence

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