



**Asia-Pacific
Economic Cooperation**

2011/SOM1/HRDWG/070
Agenda Item: EDNET 7.1

Math and Science Education Priority Area Introduction

Purpose: Information
Submitted by: EDNET Coordinator



**33rd Human Resources Development
Working Group Meeting
Washington, D.C., United States
7-11 March 2011**

APEC Education Network

Math and Science Education Priority Area Introduction



Asia-Pacific Economic Cooperation Education Network

*Mathematics and Science are
essential to navigating the data-
driven and technological world of
the 21st century, no matter one's
occupation;*

-APEC Education Ministers, 2008



Asia-Pacific Economic Cooperation Education Network

Recommended Activities

Standards and Assessments	Teacher Quality and Instruction
Translate and analyze standards	Evaluating different instructional approaches
Develop a assessment bank of test items	Encouraging the expanded use of the lesson-study
Policies and Research	Launching multiyear collaborative online professional development
Conducting case APEC economies changes in policy directions	Examining math-science connections
Evaluating course requirements and assessments required for upper secondary school graduation or college admissions	Resources and Tools
	Using the HRDWG wiki as a tool for on-going collaboration



Asia-Pacific Economic Cooperation Education Network

Standards and Assessments

Recommended activities	Projects and Activities
<ul style="list-style-type: none"> •Translate and analyze standards •Compare differences between Members different standards approaches 	<ul style="list-style-type: none"> •Report completed comparing standards from 10 translated APEC economies • Comparison of Massachusetts, USA and Hong Kong, China assessments completed
Develop an item bank of APEC member test items in mathematics and science	APEC mathematics assessments database created



To search the assessment database, select an APEC Member, grade, then stand and click "Go."
View more information about each APEC Member's assessment process! View Full Assessments

Please select an APEC Member:

APEC Member: ALL Hong Kong Japan New Zealand United States

Grade: AL CL CH CN CO CU HK JP NZ US

Stand: AL CL CH CN CO CU HK JP NZ US



Asia-Pacific Economic Cooperation Education Network

Room for Improvement

- Create APEC science assessments database
- Expand the APEC mathematics assessment database

Teacher Quality and Instruction



Recommended activities	Projects and Activities
Evaluate different mathematics and science instructional approaches	<ul style="list-style-type: none"> •International Benchmarking In 21st Century Mathematics Education •International comparative Practices in Teacher Preparation
Launch multi-year collaborative online professional development	<ul style="list-style-type: none"> •Best Practices in Human Resources Capacity Building for Math/Science
Encourage the expanded use of the lesson-study approach	<ul style="list-style-type: none"> •Project series on Classroom Innovations Through Lesson Study
Examine how to improve math-science connections	



Asia-Pacific Economic Cooperation Education Network

Policies and Research

Recommended Activities	Projects and Activities
Conduct case studies on changes in policy directions in mathematics and science	
Evaluate course requirements and assessments required for upper secondary school graduation or college admissions	



Asia-Pacific Economic Cooperation Education Network

Resources and Tools

Recommended Activities

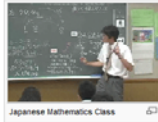
Use the HRDWG wiki as a tool for on-going APEC international

Projects and Activities

Most projects in this priority have significant content on the APEC HRDWG wiki

Key Topics and Resources

- **Standards:** sample standards (in English) from 9 APEC economies with comparative analyses.
- **Assessment:** analyses of sample assessments, a searchable database of assessment items, and full assessments from APEC economies.
- **Instruction:** strategies to help teachers emphasizing Singapore Math the Japanese professional development process called Lesson Study.



The APEC project, Classroom Innovations through Lesson Study, provides videos of research lessons highlighting this process with segment by segment analysis.

Videos of Lesson Study Research Lessons:

- Multiplication (Grade 3, Japan)
- Thinking Systematically (Grade 6, Japan)
- Area of the Circle (Grade 5, Japan)
- Whole Number Categorization Grade 5 (Japan)
- Multiply and Divide Fractions (Grade 6, Japan)
- Decimal Numbers (Grade 5, Japan)
- Quadrilaterals (Singapore)
- Sides of Squares and the symbol " \surd " (Grade 7, U.S.A.)
- Interpreting the Graph of the Derivative of a Function (Grade 11, U.S.A.)
- Does the Area of the Quadrilateral Change? (Grade 6, U.S.A.)
- How Many Cards Do We Need to Display the Dates? (Grade 3, U.S.A.)
- List of all available research lesson videos



Asia-Pacific Economic Cooperation Education Network