

ArizMATYC

How do we compete in a global economy?

U.S. lags behind in advanced math scores

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[Dana Edwards](#)

The U.S. ranks 31st among industrialized nations in advanced math scores, making its scores comparable to Latvia, Italy and Spain, according to a November study conducted by a team of Stanford and Munich researchers.

In the U.S., 6.04 percent of the report's subjects were classified "advanced," meaning they scored at least 617.1 on the Program for International Student Assessment (PISA) test. Taiwan, Hong Kong, Korea and Finland led the pack at more than 20 percent, and 12 other nations more than doubled America's percentage.

Shanghai Owns the International PISA Science Math Test By *Arthur Hu* December 10, 2010

Education Week came up with the usual “OMG America stinks” international test ranking, with U.S. Secretary of Education Arne Duncan stating the “results, to be brutally honest, show that a host of developed nations are out-educating us ... Americans need to wake up to this educational reality.”

- **Math scores ranked**

- Shanghai-China 600 1
- Singapore 562 2
- Hong Kong-China 555 3
- Korea, Republic 546 4
- Chinese Taipei 543 5
- Finland 541 6
- Liechtenstein 536 7
- Switzerland 534 8
- Japan 529 9
- Canada 527 10
- Netherlands 526 11
- Macao-China 525 12
- New Zealand 519 13
- Belgium 515 14
- Australia 514 15
- Germany 513 16
- Estonia 512 17
- Iceland 507 18
- Denmark 503 19
- Slovenia 501 20
- Norway 498 21
- France 497 22
- Slovak Republic 497 23
- Austria 496 24
- Poland 495 25
- Sweden 494 26
- Czech Republic 493 27
- United Kingdom 492 28
- Hungary 490 29
- Luxembourg 489 30
- **United States 487 31**
- Ireland 487 32

- Portugal 487 33
- Spain 483 34
- Italy 483 35
- Latvia 482 36
- Lithuania 477 37
- Russian Fed 468 38
- Greece 466 39
- Croatia 460 40
- Dubai-UAE 453 41
- Israel 447 42
- Turkey 445 43
- Serbia, 442 44
- Azerbaijan 431 45
- Bulgaria 428 46
- Romania 427 47
- Uruguay 427 48
- Chile 421 49
- Mexico 419 50
- Thailand 419 51
- Trinidad Tobago 414 52
- Kazakhstan 405 53
- Montenegro 403 54
- Argentina 388 55
- Jordan 387 56
- Brazil 386 57
- Colombia 381 58
- Albania 377 59
- Tunisia 371 60
- Indonesia 371 61
- Qatar 368 62
- Peru 365 63
- Panama 360 64
- Kyrgyz Republic 331 65

What Experts are Saying about PISA?

PISA claims to measure education's application to real-life problems and life-long learning (workforce knowledge).

**What are
successful nations
doing ?**

Finland's Great Results

- high discipline of students,
- high teacher status (attracting good students to the teaching profession),
- high quality of teachers due to professional teacher education,
- conservative direct instruction ("teaching ex cathedra", "pedagogical conservatism"),

Hannu Simola The stably good results of Finland have attracted a lot of attention

Finland's Great Results (cont)

- low rates of immigrants,
- fast diagnosis of learning problems and treatment of them including special schools,
- a culture of a small border country (as Singapore and Taiwan), knowing that the people could survive only with effort.

United States' Problems cited in the Literature

- Too much emphasis on socialization and not enough on education – weak curriculum,
- Low respect for the teaching profession,
- Low pay for the teaching profession,
- Unqualified teachers,
- Lack of discipline,
- Lack of parental involvement

Shanghai

The results also appeared to reflect the culture of education there, including greater emphasis on teacher training and more time spent on studying rather than extracurricular activities like sports.

PISA: U.S. is mediocre in reading, math, science 12/7/2010 By [Joanne](#)

“While many Americans believe that other countries get better results because those countries educate only a few, while the United States educates everyone, that turns out not to be true,” NCEE concludes. Compared to the U.S., most top-performing countries do a better job of educating students from low-income families.

- <http://www.joannejacobs.com/2010/12/pisa-u-s-is-mediocre-in-reading-math-science/>

Math instructors and math students must renew their way of thinking, teaching and learning

It is essential that we either restructure math education or import immigrants who can assist us to compete in a global economy.

**What are we [teachers] to do??
What are the students to do??**

**Exactly,
what do
successful teachers do?
[See handout]**

Know Your Audience

- **Meaningful**
- **Motivational**
- **Organization of content**

Using Gardner's Multiple Intelligences

Logical

Linguistic

Musical

Bodily kinesthetic

Spatial

- If I told you that you could learn the quantum theory in 20 minutes would you believe me? How about 10 minutes?
- If I told you that you could learn 3 groups on the periodic table in a few minutes and never ever forget them, would you believe me?
- There are as many learning styles as there are students – so what do you have in your bag of tricks to teach ALL your students?



Have High Expectations

**BUT, give the students
the plan for success**

What are the students to do??

- Positive Affirmations
- Mental Imagery
- Goal-Setting
- Self-Assessment
- Groups

Additional information on the 1st 4 bullets can be found in *The Formula: Transform Your Dreams into Reality*. Go to www.tatepublishing.com/bookstore input either the title or Barcomb.

Finally

Demonstrate a passion for your students and what you teach.

If you don't love what you are doing you should look for a career that will bring joy in your life.