

Should Oregon adopt the Common Core Standards in Language Arts & Mathematics?

BACKGROUND

What are the Common Core Standards? They are descriptions of what students should know and be able to do at each K-12 grade level in fundamental subjects: reading, writing, and math. The goal is to establish a clear, rigorous framework, consistent from state to state, for education that effectively prepares students for college or work.

Who created the standards?

- **Leadership:** NGA (National Governors Association) & CCSSO (Council of Chief State School Officers)
- **Development Group:** ACT, College Board, Achieve, College/University Professors, K-12 Teachers

What is the current status of the initiative? Nearly-final draft of K-12 standards (see diagram on p. 2)

- Before draft standards were available, most states, including Oregon, agreed, to consider adoption (Exceptions were Alaska and Texas.)
- Drafting of K-12 standards for each grade has moved fast: 1st draft 1-13-10; Last draft 3-10-10
- Opportunity for comment is now: Go to survey at www.corestandards.org by April 2, 2010 and see News Release on p.3.
- Adoption is tied to Race to the Top funds
- Once adopted, assessment is the next step.

SHOULD OREGON ADOPT THE COMMON CORE STANDARDS?

Arguments for

- The Common Core concept is good (agreement among ODE, SBE, OUS)
- The Language Arts standards are good (agreement among ODE, SBE, OUS)

Arguments against

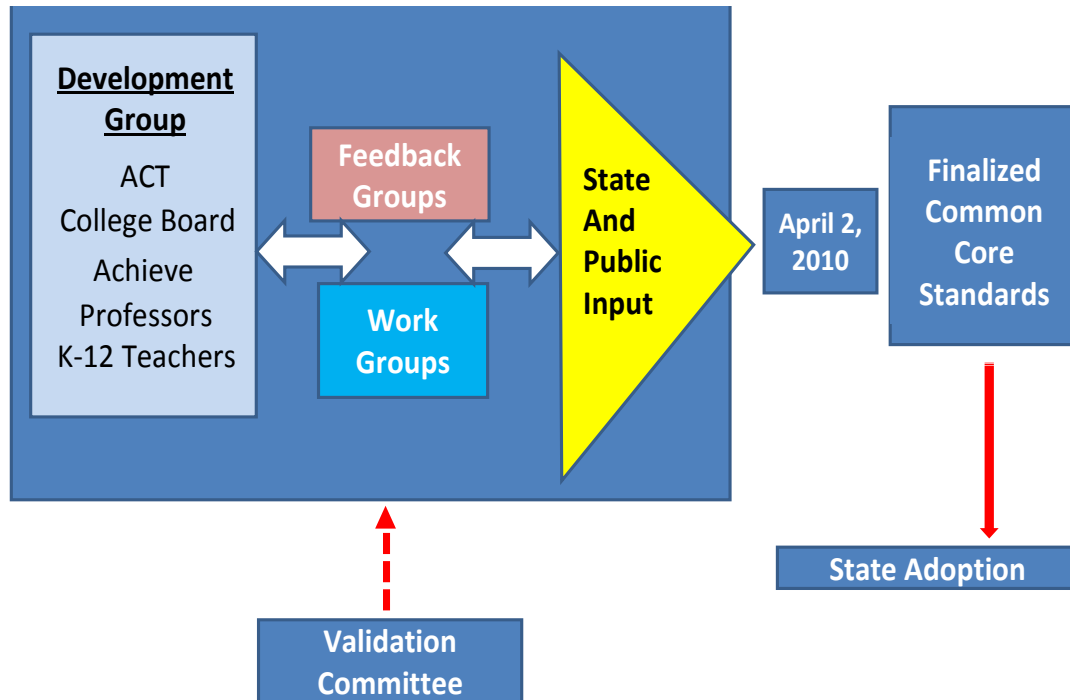
- The Common Core Math Standards are not well-conceived – especially at the high school level. They are a step back from the promise of fewer standards, taught in more depth. That is, they are not “Core”. They emphasize high-level, complex math (quadratic relationships and trigonometry) at the expense of mastery of the basics (linear relationships, proportions and the application of math in a variety of settings). These fears are shared by: ODE, SBE and individual OUS faculty (e.g. Hal Sadofsky: UO Math)
- Oregon has just (2009) developed new math standards that are truly “core” standards: simpler and more focused than either their Oregon predecessors or the proposed national standards.
- A 2009 ACT survey suggests that university math faculty expectations are more congruent with the new Oregon Math Standards than with the proposed Common Core Math Standards (see excerpt on p. 4).
- A recent survey of OUS faculty teaching math-requiring courses (e.g. science, economics, business) gave the same result (see excerpt on pp 5-7) .

ACTIONS NEEDED FROM YOU

- Encourage OUS faculty to comment on the proposed Common Core Standards (esp. Math) by April 2.
- Endorse the SBE/ODE effort to revise the Common Core Math Standards

K-12 Common Core Standards

Process for Creating the Common Core K-12 Standards



News Release 03/10/2010

Draft K-12 Common Core State Standards Available for Comment NGA Center, CCSSO Release First Official Public Draft WASHINGTON-The National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO) today released the first official public draft of the K-12 standards as part of the Common Core State Standards Initiative, a process being led by governors and chief state school officers in 51 states, territories, and the District of Columbia. These draft standards, developed together with teachers, school administrators and experts, seek to provide a clear and consistent framework to prepare our children for college and the workforce.

The NGA Center and CCSSO have received feedback from national organizations representing, but not limited to teachers, postsecondary education (including community colleges), civil rights groups, English language learners, and students with disabilities. The NGA Center and CCSSO encourage those interested in the standards to provide further feedback by Friday, April 2, 2010, at www.corestandards.org.

"We are pleased to release the K-12 standards today and to begin reviewing comments from the public," said Dane Linn, director of the NGA Center's Education Division. "These standards build upon the goals articulated in the college- and career-readiness standards released last year and will ensure our students are prepared to compete and succeed in a global economy. We look forward to working with educators, leaders and state board members in the states as they consider adopting these standards that will guide their educational programs. "The feedback and comments states and our additional stakeholders have provided us are solidifying these standards into the better standards our students need," stated Gene Wilhoit, executive director of CCSSO. "We will continue to work diligently and tirelessly to ensure these standards are where they need to be, and today we are asking the public to help us do just that."

These standards define the knowledge and skills students should have within their K-12 education careers so that they will graduate high school able to succeed in entry-level, credit-bearing academic college courses and in workforce training programs. The standards are:

- * Aligned with college and work expectations;
- * Clear, understandable and consistent;
- * Include rigorous content and application of knowledge through high-order skills;
- * Build upon strengths and lessons of current state standards;
- * Informed by other top performing countries, so that all students are prepared to succeed in our global economy and society; and
- * Evidence- and research-based.

The standards are expected to be finalized in early Spring. For more information, visit www.corestandards.org.

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The Mathematics ACT National Curriculum survey 2009

Disagreement Between High School and Postsecondary Instructors About What is Most Important in Mathematics

Table 3.5 Rank-Ordered List of Mathematical Topics by Postsecondary Instructor Importance		
Postsecondary rank	High School rank	Content and skills
1	27	Perform addition, subtraction, multiplication, and division on signed rational numbers
2	39	Solve routine first-degree equations
3	45	Add and subtract simple algebraic expressions
4	61	Locate points in the coordinate plane
5	47	Solve routine two- or three-step arithmetic problems
5	52	Evaluate algebraic expressions by substituting integers for unknown quantities
5	19	Solve linear equations and inequalities in one variable
8	65	Exhibit knowledge of elementary number concepts (e.g., rounding, decimal ordering, pattern identification, absolute value, primes, and greatest common factor)
9	16	Recall basic facts, definitions, formulas, and algebraic procedures as needed to solve a problem
9	3	Apply rules of exponents
9	80	Comprehend the concept of length on the number line

Table 3.6 Rank-Ordered List of Mathematical Topics by High School Teacher Importance		
Postsecondary rank	High School rank	Content and skills
28	1	Solve quadratic equations
54	2	Evaluate quadratic functions based on function notation
9	3	Apply rules of exponents
20	4	Factor quadratics
45	5	Understand the concept of function
19	6	Add, subtract, and multiply polynomials
46	7	Evaluate linear functions based on function notation
12	8	Use mathematical symbols correctly
65	9	Find solutions to systems of linear equations
59	10	Find domain, range, and inverses of functions

Results reveal that the College Algebra instructors more highly value fundamental understanding of mathematical concepts as prerequisites for success for their courses. High school Algebra II teachers rated more advanced topics as most important.

OUS Faculty Survey

Importance of Particular Math Subject Areas for Entry-level Classes in 9 University Disciplines

The shaded boxes indicate subject areas that were rated low in importance. Their scores are below 2.33, which means that at least 2 of every 3 respondents said that the subject area was not important for success in their courses.

		Calcu- -tions	Algebra	Statistics	Geometry	Trigono- -metry	Adv Algebra
Engineer- -ing	Mean	3.38	3.68	2.84	3.27	3.90	3.14
	Std Dev	0.64	0.31	0.68	0.50	0.14	0.73
Physics	Mean	3.28	3.19	2.70	2.38	2.62	2.59
	Std Dev	0.45	0.37	0.26	0.72	0.04	0.65
Computer -Science	Mean	3.21	3.12	2.72	2.37	1.88	2.61
	Std Dev	0.45	0.32	0.21	0.52	0.18	0.56
Chemistry	Mean	3.19	3.29	2.47	1.90	1.73	2.14
	Std Dev	0.57	0.45	0.60	0.59	0.13	0.60
Geology	Mean	3.19	2.97	2.87	2.24	2.17	1.70
	Std Dev	0.39	0.71	0.98	0.78	0.23	0.68
Business	Mean	2.66	2.89	2.69	1.84	1.56	1.97
	Std Dev	0.68	0.62	0.71	0.95	0.47	0.56
Biology	Mean	3.09	2.72	3.13	1.79	1.13	1.82
	Std Dev	0.36	0.61	0.29	0.98	0.29	0.71
Economics	Mean	2.03	3.08	3.03	1.98	1.33	1.92
	Std Dev	0.90	0.74	0.32	1.02	0.00	0.87
Environ -Science	Mean	3.00	2.60	1.95	1.78	1.25	1.43
	Std Dev	0.64	0.82	1.25	0.76	0.00	0.53
All -Disciplines	Mean	2.94	3.06	2.69	2.13	1.82	2.15
	Std Dev	0.40	0.40	0.49	0.65	0.04	0.47

OUS Faculty Survey

Sample of Questions Consistently Rated MOST Important (Agreement $\geq 50\%$)

1. One hundred is multiplied by a number between 0 and 1. The answer has to be
- A. less than 0.
 - B. between 0 and 50 but not 25.
 - C. between 0 and 100 but not 50.
 - D. between 0 and 100.
-

5. a. Len runs a mile in 8 minutes. At this rate how long will it take him to run a 26-mile marathon?
- A. 3.25 minutes
 - B. 3.25 hours
 - C. 3.47 minutes
 - D. 3.47 hours
-

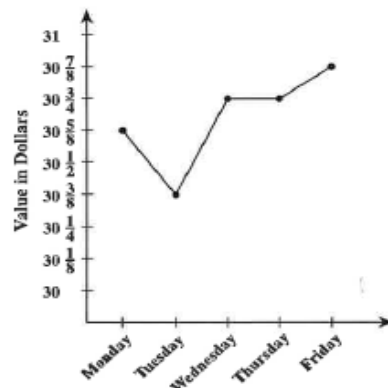
7. The radius of the earth's orbit is 150,000,000,000 meters. What is this number in scientific notation?
- A. 15×10^{-11}
 - B. 1.5×10^{11}
 - C. 1.5×10^{10}
 - D. 15×10^9
-

8. The cost of an afternoon movie ticket last year was \$4.00. This year an afternoon movie ticket costs \$5.00. What is the percent increase of the ticket from last year to this year?
- A. 10%
 - B. 20%
 - C. 25%
 - D. 40%
-

20. Solve for x. $2x - 3 = 7$
- A. -5
 - B. -2
 - C. 2
 - D. 5
-

35. Which of the following is smallest?
- A. 10^{10}
 - B. 10^0
 - C. 10^{-1}
 - D. 10^{-10}
-

38. The graph on the right represents the closing price of a share of a certain stock for each day of a week. Which day had the greatest increase in the value of this stock over that of the previous day?
- A. Tuesday
 - B. Wednesday
 - C. Thursday
 - D. Friday

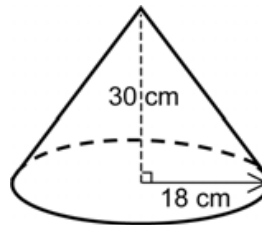


OUS Faculty Survey

Sample of Questions Consistently Rated LEAST Important (Agreement $\geq 50\%$)

14. Factor. One factor is given. $f(x) = 4x^3 - 4x^2 + 120x$
Factor: $x+5$
-

24. The volume of the cone is ___?___ cm^3 .
A. 2592π B. 3240π
C. 7776π D. 9720π



43. Find the center, foci, vertices and co-vertices of this ellipse:

$$\frac{(X - 2)^2}{25} + \frac{(Y + 6)^2}{9} = 1$$

45. Calculate: $\log_2 16 + \log_2 32$ $\log_3 9 + \log_3 27$
-

48. Use an inverse matrix to solve the linear system:
 $-9X + 7Y = -132$ $-3X - 1Y = -24$
-

50. Solve this equation by factoring: $7\frac{1}{2} X^2 + 30X - 157\frac{1}{2} = -67\frac{1}{2}$
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