

# **Accountability Measures: CPI, SGP, PPI & Accountability Levels**

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## What were the major changes for 2012?

1. NCLB goal of 100 percent proficient replaced by new goal of reducing proficiency gaps by half by 2017
2. NCLB accountability status labels replaced by state's accountability & assistance levels (Levels 1-5)
3. AYP replaced by new performance measure (*Progress & Performance Index - PPI*) that incorporates student growth, science, & other indicators



## What were the major changes for 2012? (continued)

4. Data reported for new “high needs” subgroup, an unduplicated count of all students belonging to any of these subgroups: low income, students with disabilities, English language learner/former English language learner
5. School percentile reported, representing school’s overall performance on PPI indicators relative to other schools of the same school type



CPI	SGP	PPI
<p>Converts performance levels into a numerical snapshot of the achievement of a group.</p> <p>Higher achieving schools and districts have higher CPI scores</p>	<p>A measure of the change in student scores, comparing students with like performance. Can be applied to an individual or a group</p> <p>Higher achieving districts <i>may have</i> higher SGPs</p>	<p>A measure combining multiple elements and awarding points for improvement of scores and certain “extra credit” elements. Applied to groups.</p> <p>Higher achieving districts <i>may have</i> higher or lower PPIs</p>

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CPI	
Advanced	100 points
Proficient	100 points
High Needs Improvement	75 points
Low Needs Improvement	50 points
Warning	25 points or 0 points

## CPI

### Purposes

Clean, easy to understand and calculate

Stable measure (with large groups)

Comparable across districts due to being an absolute (not relative) performance measure

### Cautions

Difficult to show advancement at high levels with very large groups

Significant swings with smaller groups

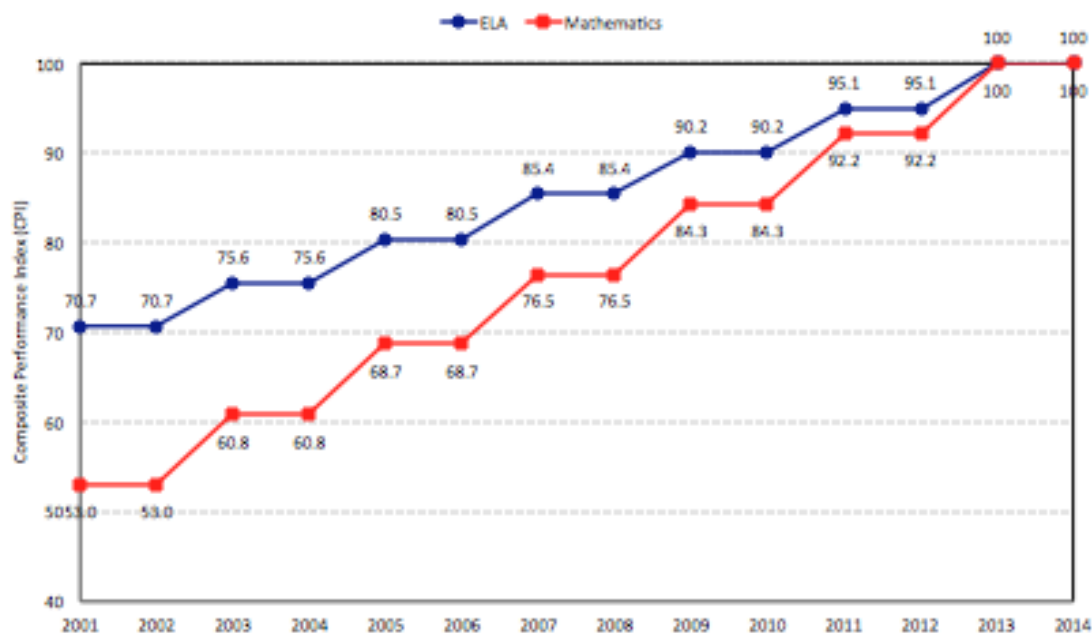
Compares performance of one group to performance of another - not growth over time

Advanced score receives same value as Proficient

What do we do **with it?**



## State performance targets under NCLB

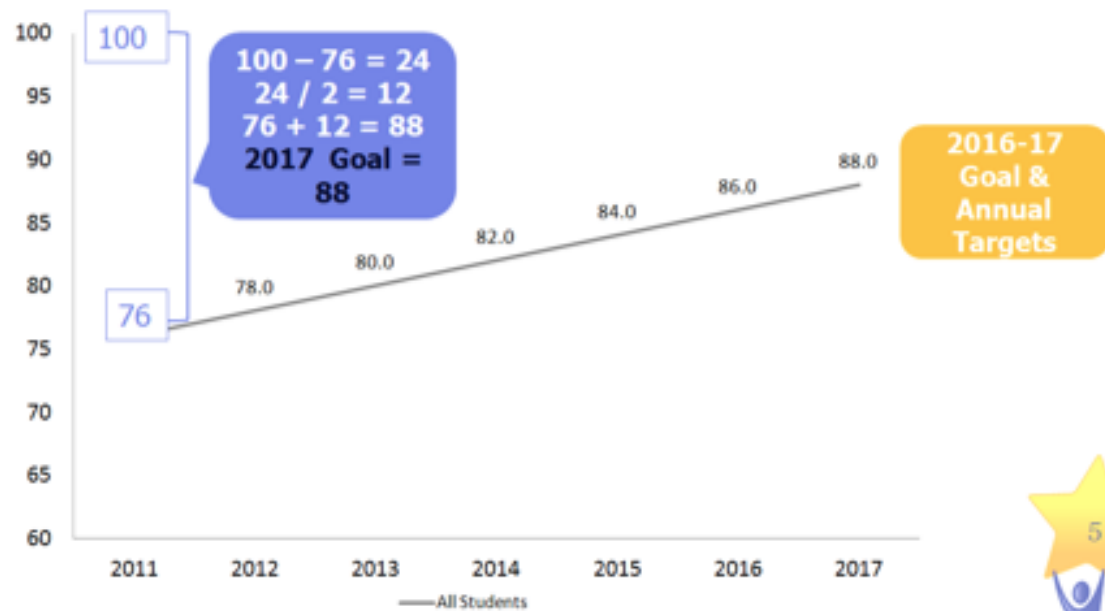


Massachusetts Department of Elementary and Secondary Education



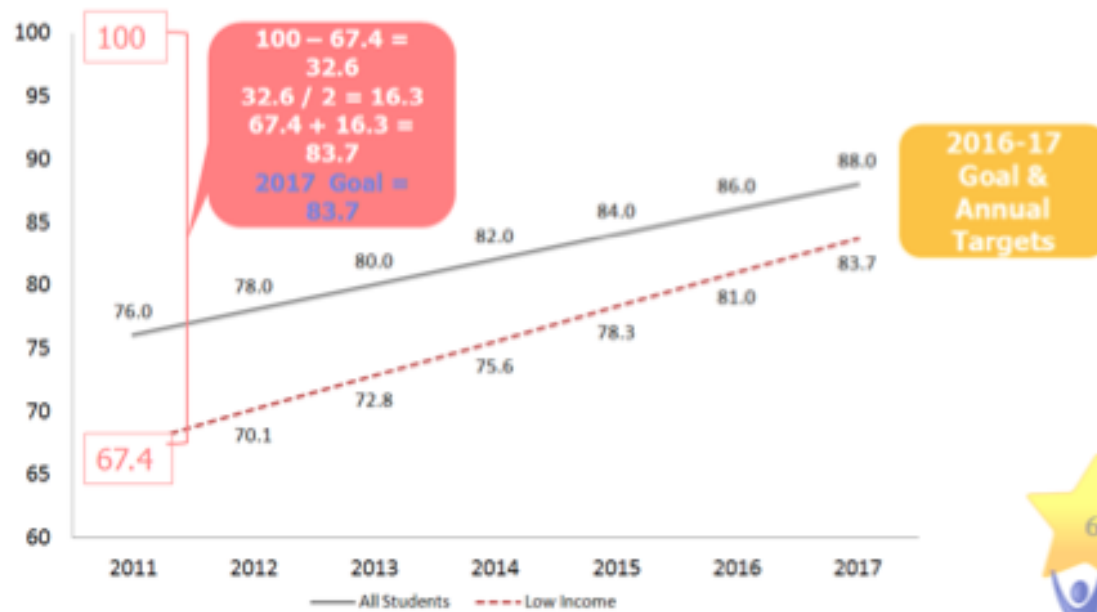
# Reducing proficiency gap by half by 2016-17

Example: Math CPI, All Students



# Reducing proficiency gap by half by 2016-17

Example: Math CPI, Low Income Students



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<p>Converts performance levels into a numerical snapshot of the achievement of a group.</p> <p>Higher achieving schools and districts have higher CPI scores.</p>	<p><b>A measure of the change in student scores, comparing students with like performance. Can be applied to an individual or a group.</b></p> <p><b>Higher achieving districts <i>may have</i> higher SGPs.</b></p>	<p>A measure combining multiple elements and awarding points for improvement of scores and certain “extra credit” elements. Applied to groups.</p> <p>Higher achieving districts <i>may have</i> higher or lower PPIs.</p>

## Student growth percentiles

- Each student's rate of change is compared to other students with a similar test score history ("academic peers")
- The rate of change is expressed as a percentile.
  - How much did John improve in mathematics from 5<sup>th</sup> grade to 6<sup>th</sup> grade, relative to his academic peers?
  - If John improved more than 65 percent of his academic peers, then his student growth percentile would be 65.

## Key concepts

- Growth is distinct from achievement
  - A student can achieve at a low level but grow quickly, and vice versa
- Each student is compared only to their statewide academic peers, not to all students statewide
  - Others with a similar test score history
  - All students can potentially grow at the 1<sup>st</sup> or 99<sup>th</sup> percentile
- Growth is subject-, grade-, and year-specific
  - Different academic peer groups for each subject, grade, and year
  - Therefore, the same change in scaled scores can yield different student growth percentiles
- The percentile is calculated on the change in achievement, not the absolute level
  - Differs from more familiar norm-referenced measures

## Rules of thumb

- Typical student growth percentiles are between about 40 and 60 on most tests.
- Students or groups outside this range has higher or lower than typical growth.
- Differences of fewer than 10 SGP points are likely not educationally meaningful.

## SGP

### Purposes

Measures growth of students over time

Stable measure (with large groups)

### Cautions

Growth measures are more complicated to interpret at highest achievement levels

Questionable comparability across schools, districts with different *achievement* levels

Significant swings with smaller groups



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**Closing Achievement Gaps**

**+**

**Growth**

**+**

**Graduation Rates**

**+**

**Dropout Rates**

**Closing Achievement Gaps**

**+**

**Growth**

**+**

**Graduation Rates**

**+**

**Dropout Rates**

**Core Indicators (up to 7)**

	<b>(A) Achievement</b>	<b>(B) Growth/Improvement</b>	<b>(C) Cohort Graduation Rate</b>	<b>(D) Annual Dropout Rate</b>
	<b>A1, A2, A3 (ELA, Math, Science)</b>	<b>B1, B2 (ELA, Math)</b>	<b>High Schools</b>	
<i>Above Target (100 Points)</i>	<ul style="list-style-type: none"> <li>• CPI of 97.5 or higher; or</li> <li>• Met CPI of 90<sup>th</sup> percentile for all students in the school type category statewide; or</li> <li>• Exceeded CPI target by more than 1.25 points</li> </ul>	<ul style="list-style-type: none"> <li>• Median SGP of 60 points or higher; or</li> <li>• Median SGP improvement of 15 or more points from prior year</li> </ul>	Four-or five-year rate of 95 percent or higher	<ul style="list-style-type: none"> <li>• Dropout rate of 0 percent; or</li> <li>• Met dropout rate of 90th percentile for all students in the school type category statewide; or</li> <li>• Exceeded annual gap-halving target by declining 3 or more percentage points from prior year</li> </ul>
<i>On Target (75 Points)</i>	<ul style="list-style-type: none"> <li>• Within +/- 1.25 points of CPI target; or</li> <li>• Met CPI of 90th percentile for the group in the school type category statewide; or</li> <li>• Met CPI of 80th percentile for all students in the school type category statewide</li> </ul>	<ul style="list-style-type: none"> <li>• Median SGP between 51-59; or</li> <li>• 10-14 median SGP point improvement; or</li> <li>• Decreased non-proficient percent by 10 percent or more from prior year</li> </ul>	<ul style="list-style-type: none"> <li>• Met four-year rate target but was below 95 percent; or</li> <li>• Met five-year rate target but was below 95 percent</li> </ul>	<ul style="list-style-type: none"> <li>• Met annual gap-halving target; or</li> <li>• Met dropout rate of 90th percentile for the group in the school type category statewide; or</li> <li>• Met dropout rate of 80th percentile for all students in the school type category statewide</li> </ul>
<i>Improved Below Target (50 Points)</i>	Improved from prior year but below CPI target minus 1.25 points	<ul style="list-style-type: none"> <li>• Median SGP of 41-50; or</li> <li>• 1-9 point median SGP improvement from prior year (reported as <i>Below Target</i>)</li> </ul>	Improvement in the four-year or five year rate of 2.5 percentage points or more from prior year, but below target	Decrease of more than 0.5 percentage points from prior year, but below annual gap-halving target
<i>No Change (25 Points)</i>	<ul style="list-style-type: none"> <li>• No change from prior year; or</li> <li>• Up to 2.5 CPI point decline from prior year</li> </ul>	Median SGP of 31-40 (reported as <i>Below Target</i> )	Within +/- 2.5 percentage points of prior four-year or five year rate	Within +/- 0.5 percentage points of prior year rate
<i>Declined (0 Points)</i>	Decline of more than 2.5 CPI points from prior year	Median SGP of 1-30 (reported as <i>Below Target</i> )	Decline of more than 2.5 percentage points from prior year	Increase of greater than 0.5 percentage points

<b>(A)</b>	
<b>Achievement</b>	
<b>A1, A2, A3</b> <b>(ELA, Math, Science)</b>	
<i>Above Target</i> <i>(100 Points)</i>	<ul style="list-style-type: none"> <li>• CPI of 97.5 or higher; or</li> <li>• Met CPI of 90<sup>th</sup> percentile for all students in the school type category statewide; or</li> <li>• Exceeded CPI target by more than 1.25 points</li> </ul>
<i>On Target</i> <i>(75 Points)</i>	<ul style="list-style-type: none"> <li>• Within +/- 1.25 points of CPI target; or</li> <li>• Met CPI of 90th percentile for the group in the school type category statewide; or</li> <li>• Met CPI of 80th percentile for all students in the school type category statewide</li> </ul>
<i>Improved</i>	<i>Improved from prior year</i>

**Extra Credit Indicators (up to 6)**

	(E) Progress at the <i>Warning/Failing</i> Level on MCAS	(F) Progress at the <i>Advanced</i> Level on MCAS
	E1, E2, E3 (ELA, Math, Science)	F1, F2, F3 (ELA, Math, Science)
<i>Met Criteria (+25 Points)</i>	Decrease the percent of students scoring <i>Warning/Failing</i> on MCAS by 10 percent or more from the prior year	Increase the percent of students scoring <i>Advanced</i> on MCAS by 10 percent or more from the prior year

**Calculating the Annual and Cumulative PPI**

Annual PPI Formula:	Cumulative PPI Formula:
Sum of points earned A-F divided by the number of indicators A-D	$(\text{Year 1 PPI} + \text{Year 2 PPI} * 2 + \text{Year 3 PPI} * 3 + \text{Year 4 PPI} * 4) / 10$

## The PPI and the school percentile

- ★ PPI is a *criterion-referenced* measure of progress
- ★ Percentiles are *relative*, and help the state and districts focus supports on low-achieving students in low performing schools
- ★ Massachusetts uses school types (ES, ESMS, MS, MSHS, HS) to fairly compare the performance of schools serving the same or similar grades and distribute resources equitably
- ★ Every school's percentile and PPI tells a different story
  - ★ Schools with *lower percentiles but higher PPIs* for all student groups are showing improvement over time
  - ★ Schools with *higher percentiles but lower PPIs* are high performing, but have more work to do to support student success



# PPI

## Purposes

Takes into account many facets of growth and achievement

Provides additional credit for increasing percentage of students scoring *Advanced*

Provides additional credit for decreasing percentage of students scoring *needs improvement* or *warning*

## Cautions

Very complex to calculate and understand

Minimally useful for cross-school or cross-district comparisons

Mixes elements that measure change in different cohorts with elements that measure growth of same students

Includes different sets of measures for different schools and districts

Small changes in achievement create large changes in points awarded








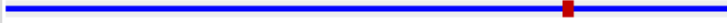



District Type	Number	% of State	% of L1
Total Districts	<b>406</b>	100%	n/a
Level 1 Districts	91	22%	100%
<b>Of those Level 1 Districts:</b>			
Multi-School Districts	5	1%	5%
Single-School Districts	27	7%	30%
Charter Districts*	36	9%	40%
Agricultural/Technical Districts*	23	6%	25%






*\*Charter and Ag/Tech Districts are single-school districts*

District Type	
<b>Total Multi-School Districts</b>	<b>237</b>
Multi-School Level 1 Districts	5
Percentage of Multi-School Districts @L1	2%

How do we know **who needs help?**

This district's progress toward narrowing proficiency gaps (Cumulative Progress and Performance Index: 1-100)			
Student Group (Click group to view subgroup data)	On Target = 75 or higher - ■		<a href="#">View Detailed 2013 Data</a>
	Less progress	More progress	
<a href="#">All students</a>		95	Met Target
<a href="#">High needs</a>		49	Did Not Meet Target
<a href="#">Low income</a>		48	Did Not Meet Target
<a href="#">ELL and Former ELL</a>		-	-
<a href="#">Students w/disabilities</a>		69	Did Not Meet Target
<a href="#">Amer. Ind. or Alaska Nat.</a>		-	-
<a href="#">Asian</a>		100	Met Target
<a href="#">Afr. Amer./Black</a>		62	Did Not Meet Target
<a href="#">Hispanic/Latino</a>		100	Met Target
<a href="#">Multi-race, Non-Hisp./Lat.</a>		96	Met Target
<a href="#">Nat. Haw. or Pacif. Isl.</a>		-	-
<a href="#">White</a>		99	Met Target

**2013 English Language Arts Proficiency Gap Narrowing**

	0 10 20 30 40 50 60 70 80 90 100	2011 CPI (Baseline)	2012 CPI	2013 CPI	CPI Change	2013 Target	6 Year Goal	Percentile In School Type	N	PPI Points
All students		96.1	96.3	95.7	-0.6	96.8	98.1	92	2094	100
High needs		86.2	85.1	83.3	-1.8	88.5	93.1	82	381	25
Low income		89.3	85.4	80.6	-4.8	91.1	94.7	39	81	0
ELL and Former ELL		-	-	-	-	-	-	-	21	-
Students w/disabilities		84.8	83.6	81.5	-2.1	87.3	92.4	90	314	75

### 2013 Mathematics Proficiency Gap Narrowing

	0 10 20 30 40 50 60 70 80 90 100	2011 CPI (Baseline)	2012 CPI	2013 CPI	CPI Change	2013 Target	6 Year Goal	Percentile In School Type	N	PPI Points
<a href="#">All students</a>		93.5	92.5	92.2	-0.3	94.6	96.8	91	2098	100
<a href="#">High needs</a>		76.9	74.0	73.2	-0.8	80.8	88.5	70	382	25
<a href="#">Low income</a>		79.2	72.6	70.0	-2.6	82.7	89.6	30	80	0
<a href="#">ELL and Former ELL</a>		-	-	-	-	-	-	-	21	-
<a href="#">Students w/disabilities</a>		75.2	71.6	70.8	-0.8	79.3	87.6	88	316	25

# Challenges & Response Strategies

## Challenges

- Closing proficiency gaps for students from low income homes
- Closing proficiency gaps in math and science for students with disabilities

## Response Strategies

- Building awareness
- Translating numbers to students
- Establishing early intervention
- Blending high expectations and differentiated support

# Efforts in Progress

## Outreach & Intervention

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- Principal outreach to low-income families
- Early intervention in literacy, with professional development and support for parents
- Individually-focused student data discussions
- Redirection of social work support
- Increase after school and implement new summer support, with further expansion planned
- Increased availability of diagnostic assessments