STAR Framework

Median Growth Percentile and Growth to Proficiency Metrics

June 19, 2017

Goals of Our Discussion

OSSE seeks to accomplish the following goals:

- Thoughtful, **productive conversation** about STAR Framework and its calculations
- Share our **philosophy** and approach to the following metrics and how we developed the **business rules**:
  - Median Growth Percentile
  - Growth to Proficiency
- Gather your **feedback** about pending decision points concerning the STAR Framework and its metrics.

Opportunities for Feedback and Questions

Your feedback is critical throughout this process, so OSSE will provide two mechanisms to provide your thoughts:

- **Attend in-person** accountability system meetings on the following dates:

  - ~~June 14~~
  - ~~June 16~~
  - **June 19**
  - June 23

  - June 29
  - July 12
  - July 14
  - July 17

  - July 21
  - July 24
  - July 27

- **Email** your feedback or questions regarding each session to OSSE.ESSA@dc.gov within three business days

Feedback for today's session is due by **COB June 22.** OSSE will provide a summary of feedback received on today's session by **June 26.**

Agenda

- **Overview of the STAR framework**
  - Timeline
  - Domains and metrics
  - Framework weights
- **Metric Deep Dive**
  - Median Growth Percentile
  - Growth to Proficiency
- **Identify questions and next steps**

Overview of STAR Framework

Timeline

- **June 14 to August 1**- STAR Framework LEA Meetings and feedback
- The next four meetings will address the following topics:

June 23	1:30 – 3:30 p.m.	806	Accountability for Schools without Frameworks
			Impact of Grades Served on STAR Rating
June 29	2 – 4 p.m.	806	TBD
July 12	1 – 4 p.m.	Grand Hall	Economically Disadvantaged Students
			3-Year Accountability Designation
			Understanding Floors and Targets
July 14	2 – 4 p.m.	806	90+ Attendance
			Attendance Growth
			Re-Enrollment
			In-Seat Attendance

- **Fall 2017**- OSSE will conduct an *informational dry run* of the accountability system and provide LEA's with preliminary STAR ratings for SY 2016-17
- **Fall 2018**- STAR Framework fully implemented for SY 2017-18

Domains and Metrics

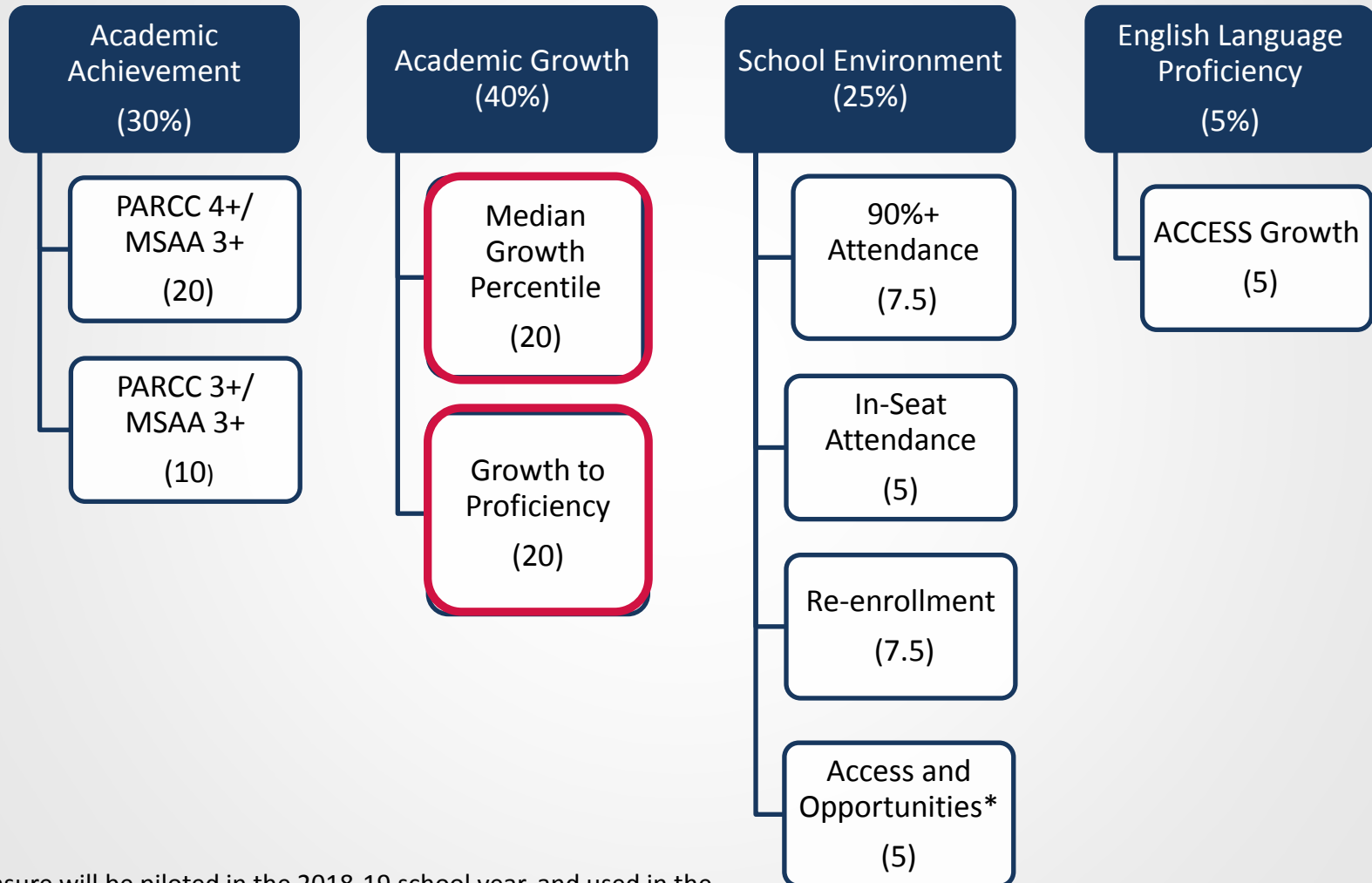| Domain	Metric
Academic Achievement	• PARCC 4+/MSAA 3+ • PARCC 3+/MSAA 3+ • SAT & ACT Performance • AP & IB Participation • AP & IB Performance
Academic Growth	• Norm-Referenced Growth Measure: Median Growth Percentile • Criterion-Referenced Growth Measure: Growth to Proficiency
Graduation Rate	• 4-Year ACGR • Alternative Graduation Metric
School Environment	• Addressing Chronic Absenteeism: Best of 90+ Attendance or Growth • In-Seat Attendance • Re-Enrollment • CLASS (pre-K only) • Access and Opportunity
English Language Proficiency	• ACCESS Growth

Structure and Weights

- **Structure**: Three of the four sub-frameworks include academic growth metrics:
  - Elementary Schools/K-8 without Pre-Kindergarten
  - Elementary Schools/K-8 with Pre-Kindergarten
  - Middle Schools
- **Weights**:
  - The academic growth metrics account for a total of 40 percent of the overall STAR Score
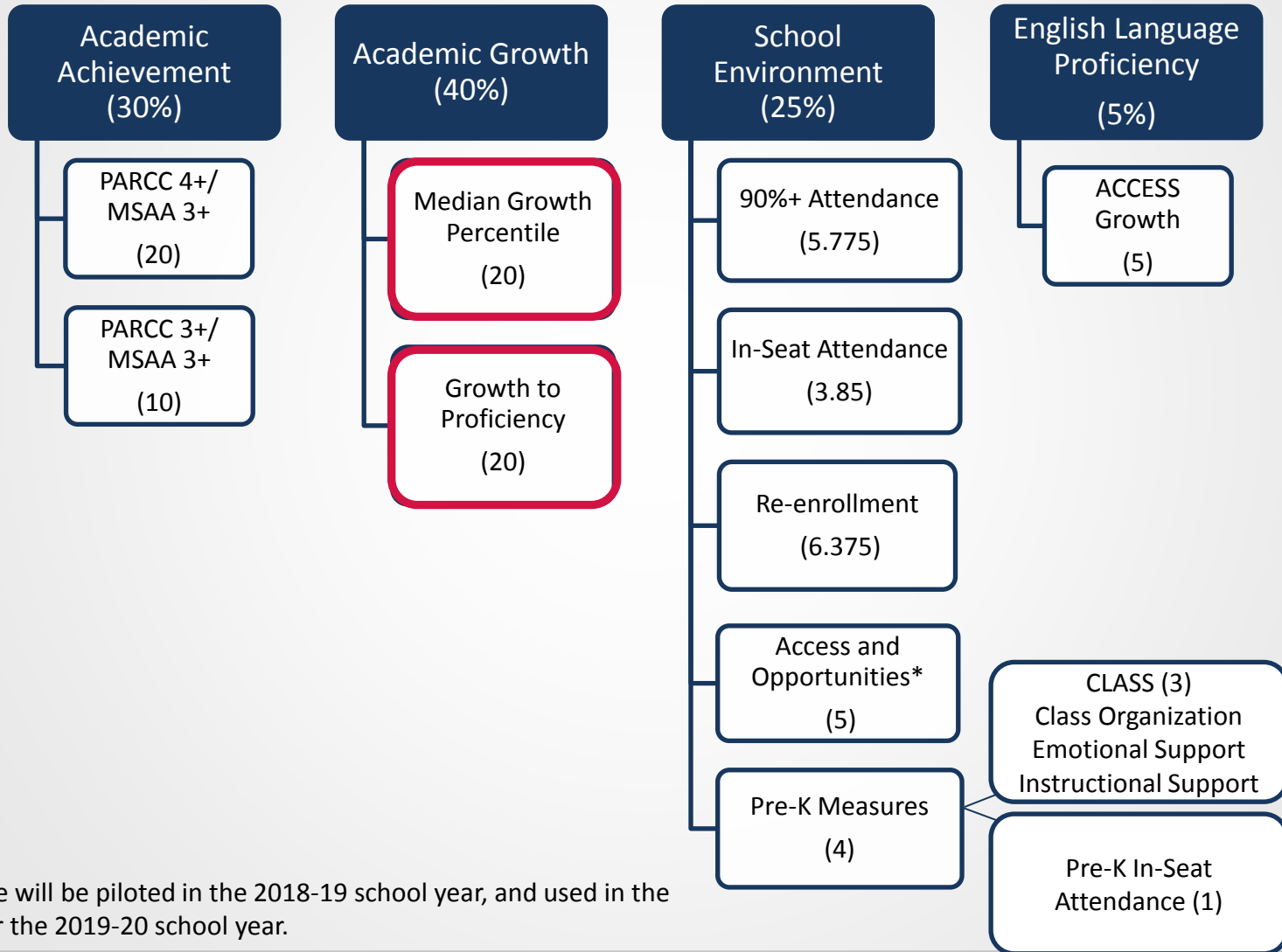 - Each academic growth metric accounts for a total of 20 possible points

STAR Framework: Elementary Schools/K-8 without Pre-Kindergarten

Academic Achievement (30%)
- PARCC 4+/ MSAA 3+ (20)
- PARCC 3+/ MSAA 3+ (10)

Academic Growth (40%)
- Median Growth Percentile (20)
- Growth to Proficiency (20)

School Environment (25%)
- 90%+ Attendance (7.5)
- In-Seat Attendance (5)
- Re-enrollment (7.5)
- Access and Opportunities* (5)

English Language Proficiency (5%)
- ACCESS Growth (5)

* This measure will be piloted in the 2018-19 school year, and used in the STAR rating for the 2019-20 school year.

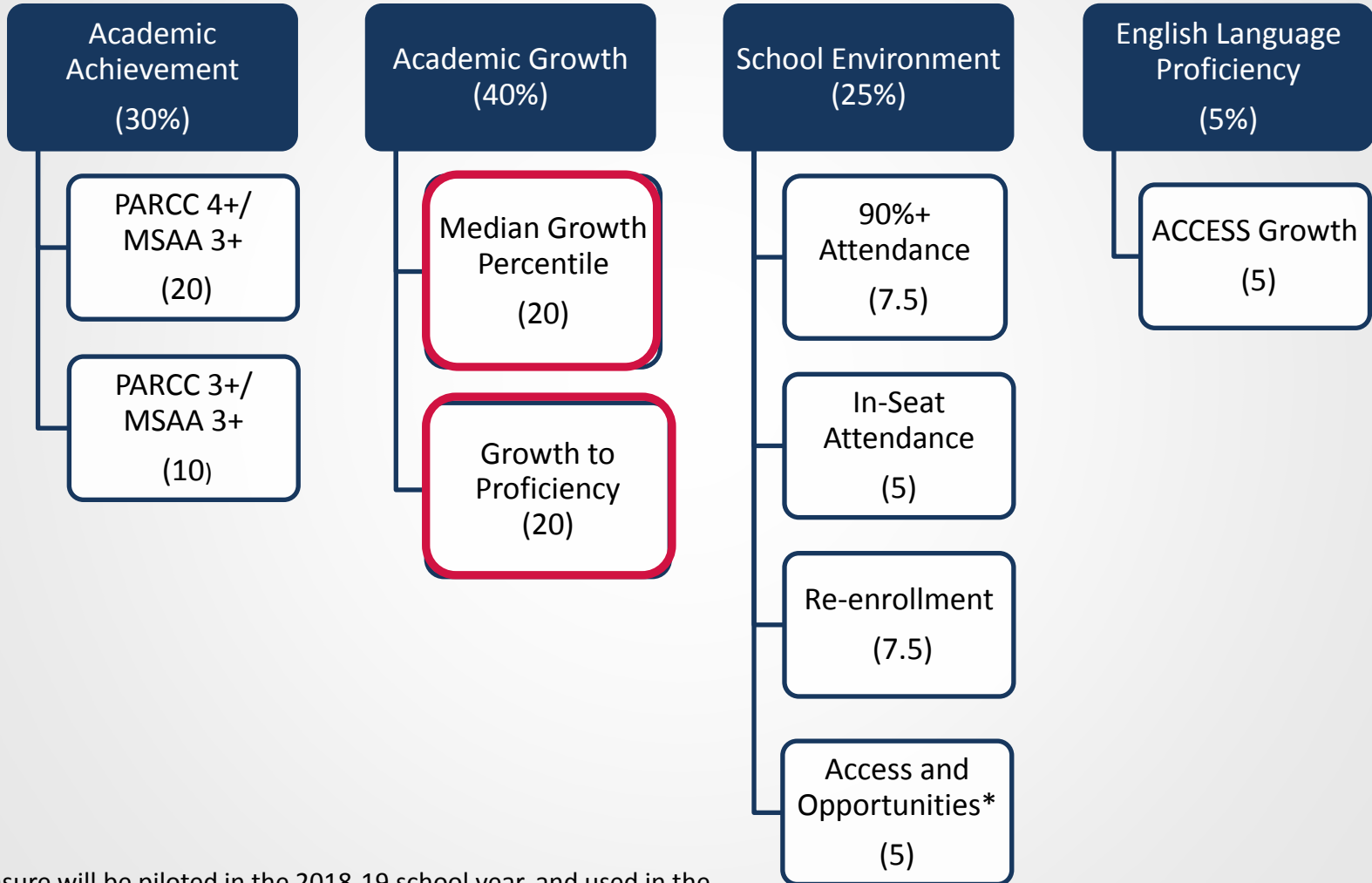# STAR Framework: Elementary Schools/K-8 with Pre-Kindergarten

Academic Achievement (30%)	Academic Growth (40%)	School Environment (25%)	English Language Proficiency (5%)
PARCC 4+/ MSAA 3+ (20)	Median Growth Percentile (20)	90%+ Attendance (5.775)	ACCESS Growth (5)
PARCC 3+/ MSAA 3+ (10)	Growth to Proficiency (20)	In-Seat Attendance (3.85)	
		Re-enrollment (6.375)	
		Access and Opportunities* (5)	
		Pre-K Measures (4)	CLASS (3) Class Organization Emotional Support Instructional Support
			Pre-K In-Seat Attendance (1)

* This measure will be piloted in the 2018-19 school year, and used in the STAR rating for the 2019-20 school year.

STAR Framework: Middle Schools

Academic Achievement (30%)
- PARCC 4+/ MSAA 3+ (20)
- PARCC 3+/ MSAA 3+ (10)

Academic Growth (40%)
- Median Growth Percentile (20)
- Growth to Proficiency (20)

School Environment (25%)
- 90%+ Attendance (7.5)
- In-Seat Attendance (5)
- Re-enrollment (7.5)
- Access and Opportunities* (5)

English Language Proficiency (5%)
- ACCESS Growth (5)

* This measure will be piloted in the 2018-19 school year, and used in the STAR rating for the 2019-20 school year.

Metric Deep Dive: Median Growth Percentile

Median Growth Percentile: Overview

- Median Growth Percentile (MGP) is a **norm-referenced**, school-level growth measure.

- MGP is a measure of the **median academic growth** of students at a school as compared to students at other DC schools

- MGP identifies student growth by **comparing the PARCC scores** of groups of students who performed similarly in the past and creating a school-wide metric.

- MGP is based on the **growth percentiles of individual students**, which range from 1 and 99.

MGP: Calculation

- MGPs are calculated separately for **Math and English Language Arts** (ELA).

- A school's MGP is determined by ordering all of its **student growth percentile** (SGPs) scores from low to high. The midpoint, or median, of these student scores becomes the school's MGP.

- An SGP measures how a student performed on this year's assessment when **compared with students** who had similar achievement on prior assessments.

- MGPs are derived from **PARCC consortium-level SGPs** to align with OSSE's goal of becoming the fastest improving state and city in the nation in student achievement outcomes.

Example: A student with a growth percentile of 80 would be said to have done better than 80 out of 100 peers with a similar test score history.

MGP: Inclusions and Exclusions

A student is included in the calculation of a school's MGP **only if all** of the following are true:

- The student is in grades 4 through 8.
- The student has a valid score on the PARCC assessment.
- The student has at least two consecutive years of PARCC assessment scores.
- The student completed the PARCC assessment at that school.
- The student meets rules for Full Academic Year (FAY) at the school level.

A student is excluded in the calculation according to the same exclusion rules used for the PARCC 4+/MSAA 3+ and PARCC 3+/MSAA 3+ metrics.

Formula: $\text{Possible Points} * \dfrac{(\text{MGP} - \text{Floor})}{(\text{Target} - \text{Floor})}$
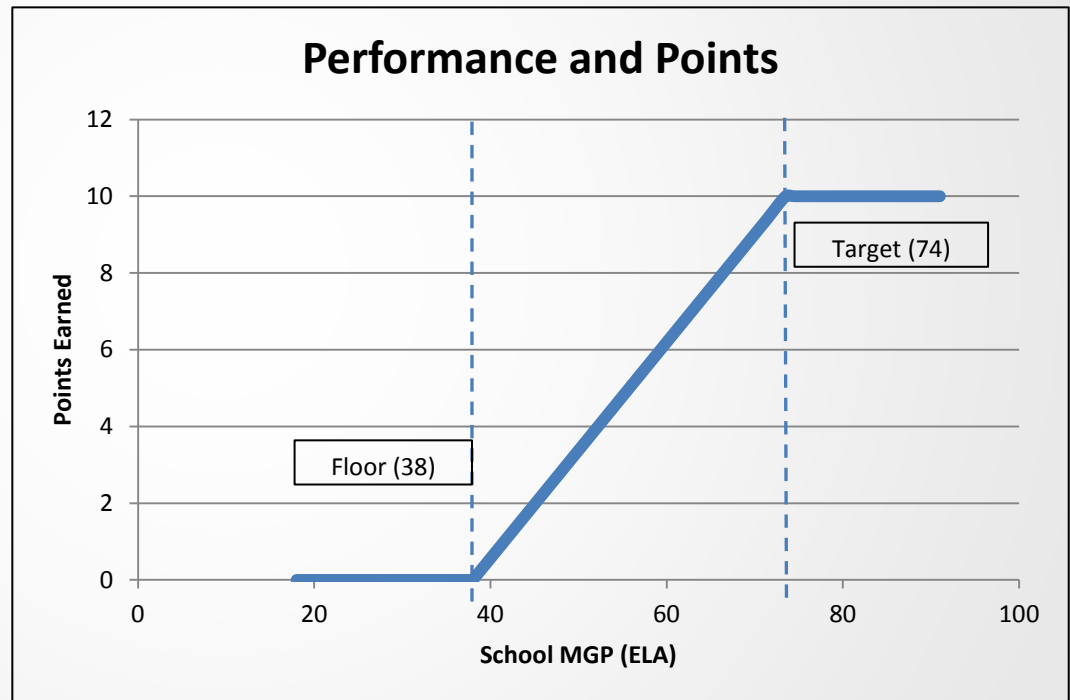
Hypothetical:
Floor (ELA): 38
Target (ELA): 74
School MGP (ELA): 60

$10 \text{ points} * \dfrac{(60 - 38)}{(74 - 38)} =$

$10 \text{ points} * \dfrac{22}{36} =$

$10 \text{ points} * 0.61 = 6.11 \text{ points}$

Performance and Points

16

Metric Deep Dive: Growth to Proficiency

Growth to Proficiency: Overview

- Growth to Proficiency is a **criterion-referenced**, school-level growth measure.
- Growth to Proficiency measures whether students have made **sufficient growth towards proficiency** on their PARCC Math and ELA assessments.

Growth to Proficiency: Overview

- **Options:** OSSE is considering three options for the growth to proficiency measure.

- **Purpose:** OSSE seeks to set ambitious but attainable growth goals for students based on two years of PARCC scores.

- **Exploratory analysis:** To inform this decision, OSSE conducted an exploratory analysis to estimate what student growth trajectories might look like in PARCC Math and ELA for each of the three options.

Growth to Proficiency: Options

- **Option A**
    - A student's **first PARCC assessment score** and associated performance level determines whether the student has three, four, or five years to reach proficiency.
    - A student's growth target is **calculated each year** based on prior year's assessment score and remaining years to proficiency.
    - A student's **current assessment score** is used to determine whether a growth target is met.
- **Option B**
    - A student has **three years** to reach proficiency regardless of the first PARCC assessment score.
    - A student's growth target is **calculated each year** based on prior year's assessment score, allowing for three years to reach proficiency.
- **Hybrid of Options A and B**

Growth to Proficiency: Exploration

Method

- Calculated the change in PARCC scale score from 2014-15 to 2015-16 for each student.

- For each performance level from 1 to 3, calculated the 25th, 50th, 75th and 90th percentile growth scores. Repeated this process for each grade.

- Example:

| Starting Grade	Starting Performance Level	Percentile	Scale Score Change Observed
5	1	25th	-8
5	1	50th	6
5	1	75th	20
5	1	90th	30

Growth to Proficiency: Exploration

Method

- Plotted four hypothetical students' projected trajectories across grades 3 through 8 based on different starting scale scores.

- Repeated for 50th, 75th, and 90th percentiles.

Student	Starting Proficiency Level	Starting Scale Score	Growth Percentile
A	1	655	25th
B	1	680	25th
C	2	705	25th
D	3	730	25th

DC PARCC ELA Trajectories

DC PARCC Math Trajectories
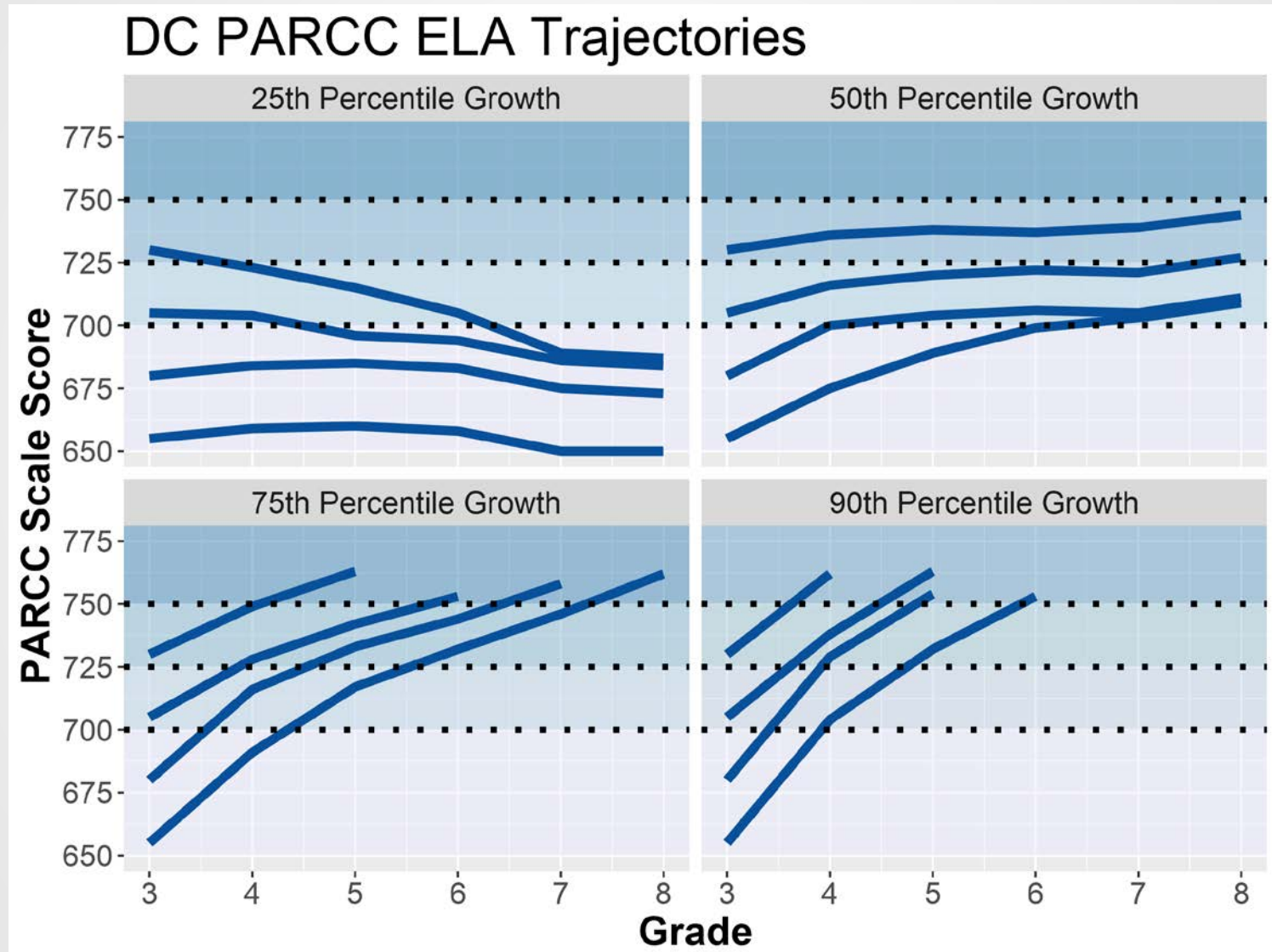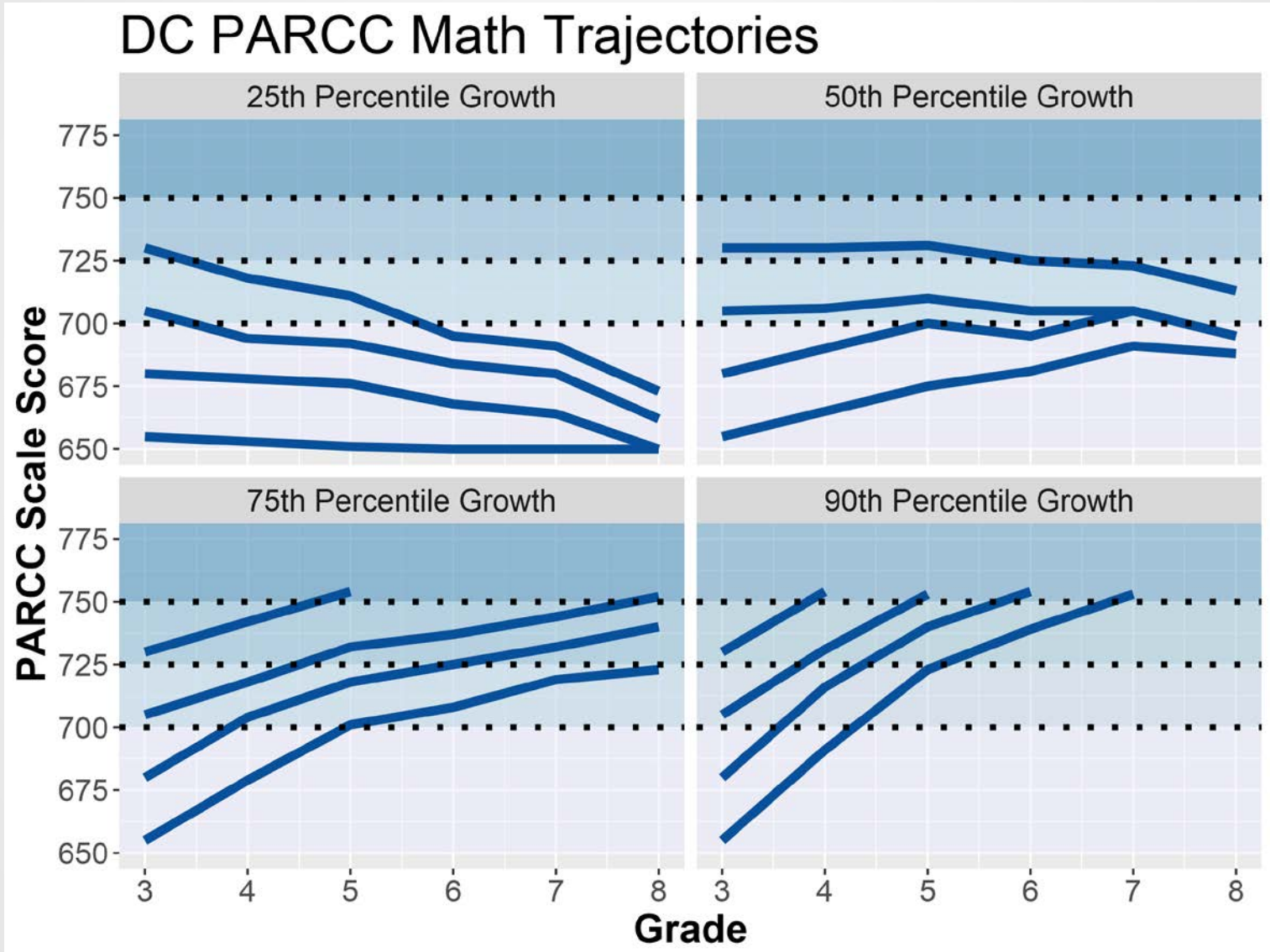
Growth to Proficiency: Option A

- Each year, each student's growth target would be set based on the **difference between a scale score of 750** (PARCC Level 4 threshold) and the student's prior year scale score, divided by the student's **projected number of growth years**.

- Students demonstrating **growth greater than** or equal to their growth target would be considered to have made **sufficient growth** toward proficiency.

- Students demonstrating **growth less than** their growth target would be considered to have made **insufficient growth**.

Example trajectory

Grade	Scale Score	Scale Score Change	Growth Target	Years Remaining to Level 4	Outcome
3	655	N/A	N/A	5	Baseline set
4	683	+28	19	4	Target met; next year's target will be the same or lower.
5	700	+17	17	3	Target met; next year's target will be the same or lower.
6	715	+15	17	2	Target missed; next year's target will be higher.
7	735	+20	18	1	Target met; next year's target will be the same or lower.
8	752	+17	15	0	Target met; performance level 4 achieved.

Growth to Proficiency: Option A

Pros

- This option allows some **flexibility** in when students demonstrate higher rates of growth.

- This option requires **students reach proficiency** within a set number of years, while remaining sensitive to the reality that students may demonstrate **different performance levels on PARCC at baseline**.

- This option aligns with the **ACCESS Growth** measure.

- The number of years allotted for growth to proficiency **aligns with PARCC performance levels 1 through 3**, with students at lower levels of performance having more years to grow.

- The number of years to proficiency approximately **aligns with growth observed at the 75th percentile** in the exploratory analysis, which is challenging yet attainable.

Growth to Proficiency: Option A

Cons

- When **students do not meet** their growth targets for several years, the targets become increasingly higher and **more difficult to attain**.

- Similarly, when **students change schools**, the new school will potentially be responsible for making up for progress not made at the previous school.

  - For example, if a student does not grow for several years at School A then transfers to School B, the student will need to make substantial growth to be counted as making sufficient growth.

Growth to Proficiency: Option B

Option B: Always three years to proficiency

- Each year, a student's growth target is set by **subtracting the student's prior year score from 750** and **dividing by three**.
- If the student's actual growth **meets or exceeds the student's target**, the student is considered to be **making sufficient growth**.

Growth to Proficiency: Option B

Example trajectory

Grade	Scale Score	Scale Score Change	Growth Target	Outcome
3	655	N/A	N/A	First year testing
4	683	+28	32	Target missed
5	700	+17	22	Target missed
6	715	+15	17	Target missed
7	735	+20	12	Target met
8	752	+17	5	Target met; performance level 4 achieved.

Pros

- This option is sensitive to the tendency for students to have **slower growth** at **higher levels of performance**.

- Schools are **not penalized** for **students who enroll** at their school who are already **off-track** in meeting their growth targets.

Growth to Proficiency: Option B

Cons

- While this option is sensitive to students who have slower growth at higher performance levels, it may assign targets that are too difficult for students at lower performance levels and may be too lenient for students at higher levels. Therefore, it may be considered **less equitable**.

- This option also does not expect a student to cross the threshold of proficiency and reach performance Level 4; instead, student targets **indefinitely approach proficiency**.

Growth to Proficiency: Hybrid Option

- Each year, a student's growth target is calculated based on the **prior year's assessment score**.

- The prior year's assessment score determines the number of years to proficiency as shown in the table below:

Prior Year's PARCC Scale Score	PARCC Performance Level	Total Years of Growth to PARCC Level 4
650-699	1	5
700-724	2	4
725-749	3	3

- The hybrid option is similar to option A in that it calculates the number of years to proficiency based on a prior assessment score; however, option A uses a student's *first* assessment score, but the hybrid option uses the *prior* year's assessment score.

- The hybrid option is similar to option B in that it only uses the previous year's assessment score to calculate growth target.

Growth to Proficiency: Hybrid Option

Example trajectory

Grade	Scale Score	Scale Score Change	Growth Target	Years to Proficiency	Outcome
3	655	N/A	N/A	5	First year testing
4	683	+28	19	5	**Target met**
5	700	+17	13	4	**Target met**
6	715	+15	25	4	**Target missed**
7	735	+20	7	3	**Target met**
8	752	+17	5	N/A	**Target met**; performance level 4 achieved.

Pros

- This option is **more flexible** than Option B in that it allows students at lower performance levels the opportunity to meet their growth targets.

- Like Option B, this option avoids issues when **students change schools**; schools are not accountable for a lack of growth in previous years.

Cons

- Like Option B, this option also does not expect a student to cross the threshold of proficiency and reach performance Level 4; instead, student targets **indefinitely approach proficiency**.

- To address this issue, **setting a minimum growth target** would prevent very small growth targets as students approach level 4.

Growth to Proficiency: Outstanding Decisions

The following decisions are under consideration as well:

- **Students who are already PARCC 4+**: How to assign a proficiency score to students who scored 4+ on the previous year's PARCC exam.
- **Inclusions / Exclusions**: How to handle irregular test progressions, e.g. grade repeaters

Questions and Next Steps

Ways to Stay Engaged

- Send questions, concerns, additional feedback to OSSE.ESSA@dc.gov
- Prior materials and notes available on www.osse.dc.gov/essa