Session 3: Interpreting aggregated SGP data

Session 1: Overview of Student Growth Percentiles	Session 2: Report format and data processing	Session 3: Interpreting aggregated SGP data	Session 4: Communication with stakeholders

VIRGINIA DEPARTMENT OF
EDUCATION

Learning Objectives

- Understand factors that may influence Student Growth Percentile (SGP) data reports

- Interpret SGP data in relation to other data sources

2

Understanding SGP Data

Student level data contained in the division- and school-level SGP report may be reorganized in various ways using a spreadsheet application such as Excel™. Options for sorting the data can include:

- SOL subject code
- SOL proficiency level
- SOL test level
- Gender
- Disability status
- LEP status
- Testing year

3

Understanding SGP Data

VDOE recommends that school divisions make informed decisions about whether to aggregate data by going through a systematic process in which all relevant factors are considered.

4

Understanding SGP Data

- Local aggregate reporting should be approached cautiously. Considerations include, but are not limited to, the following:
  - Small n counts
  - Missing data
  - Accuracy of teacher data in SGP reports
  - Data in isolation

5

Understanding SGP Data
Small n count

- Generally speaking, the number of students in a particular group (otherwise known as n count) needs to be considered before making inferences about the role of SGP within that group.

- Overlooking small n counts when grouping data can lead to misjudgments in interpreting the meaning of SGP and determining the best course of action to pursue.

6

Understanding SGP Data
Small *n* count

To understand whether it is appropriate to draw inferences from cases where the *n* count is small, it is imperative to dig deeper to answer other critical questions such as:

- Why is there a small number of students with SGP data (e.g., Is it a small group of students to begin with)?
- In general
  - A group of less than 15 students is too small for making inferences about the group and aggregate data should not be used for making high-stakes decisions.
  - A group of less than 30 students may be too small for making inferences about the group and aggregate data should not be used for making high-stakes decisions.
- With data from small groups, consider the variability (spread) of the data before proceeding with data aggregation.

7

Understanding SGP Data
Missing Data

To understand whether it is appropriate to draw inferences from cases where data are missing, consider the following:

– What is the exact amount of missing SGP data (number of records and percent)?

– Is there a systematic reason why the SGP data are missing?

8

Understanding SGP Data
Missing Data

Application of the SGP business rules will result in missing data when:

- Students have two or more years of advanced scores ($\geq$ 500)

- Students participate in alternate or alternative assessments (VGLA, VAAP, and VSEP) for at least one of two consecutive years

- Students do not have two consecutive years of SOL scores in the same subject (mathematics or reading)

- Students take the same level SOL test for two consecutive years

- Students take unusual pathways through the state testing program

9

Understanding SGP Data
Other Missing Data

Data for students with a testing status will not be included in the Student Growth Percentile report. Students could receive a testing status due to:

- Absence from testing

- Medical emergency

- Other

10

Understanding SGP Data
Other Missing Data

Students who have been assigned more than one State Testing Identifier (STI) and have had their STIs merged will not have a complete SOL score history. Complete data for these students will not be included in the SGP report.

11

Understanding SGP Data
Accuracy of Teacher Data

The teacher information in the SGP report is based on the teacher and student information provided by the school division to VDOE in the Master Schedule Collection (MSC).

The accuracy of the link established between teacher and student in the MSC will determine the accuracy of the teacher data in the SGP report.

12

Understanding SGP Data
Data in Isolation

SGP data should be viewed as one of multiple pieces of information that may be used to analyze student performance.

Other measures to consider when analyzing student performance may include, but are not limited to, SOL assessments, classroom assessments, benchmark assessments, attendance, discipline, etc.

13

Freedom of Information Act (FOIA)

School divisions must be aware that aggregate data reports may be subject to public release under Virginia's Freedom of Information Act (FOIA) law.

14

Summary Reports

VDOE is in the process of developing summary reports that will be available to school divisions at a later date.

15

Looking at SGP data: Always look at SGP data carefully to assess appropriate representation. For example, the table below shows Student Growth Percentile Levels for **Jefferson County Elementary School. To what extent are SGP data representative of the student population at the various test levels**?

Test Level	Subject	Test	Student Growth Percentile Levels									
			Missing SGP		Low SGP		Moderate SGP		High SGP		Totals	
			n	%	n	%	n	%	n	%	n	%
3rd Grade	English Reading	Reading	88	100%	-	-	-	-	-	-	88	100%
4th Grade	English Reading	Reading	19	17%	52	48%	17	16%	21	19%	109	100%
5th Grade	English Reading	Reading	32	27%	41	34%	22	18%	25	21%	121	`100%
6th Grade	English Reading	Reading	33	35%	19	20%	23	23%	21	22%	95	100%
3rd Grade	Mathematics	Mathematics	83	100%	-	-	-	-	-	-	83	100%
3rd Grade	Mathematics	Plain English Mathematics	4	100%	-		-	-	-	-	4	100%
4th Grade	Mathematics	Mathematics	34	34%	43	43%	14	14%	9	9%	100	100%
4th Grade	Mathematics	Plain English Mathematics	1	11%	7	78%	1	11%	-	-	9	100%
5th Grade	Mathematics	Mathematics	33	30%	26	24%	26	24%	25	23%	110	100%
5th Grade	Mathematics	Plain English Mathematics	2	18%	-	-	4	36%	5	46%	11	100%
6th Grade	Mathematics	Mathematics	28	35%	8	10%	20	25%	25	31%	81	100%
6th Grade	Mathematics	Plain English Mathematics	2	33%	2	33%	-	-	2	33%	6	100%
7th Grade	Mathematics	Mathematics	6	86%	1	14%	-	-	-	-	7	100%

16

Slide 17:

- **NOTE:** This graph shows the reading data from the table on the previous slide and includes all students tested, or accounted for, at **Jefferson County Elementary School.**

- What does this graph represent?

- Which students are represented by these data?

- Why are all of the 3rd grade Reading SGPs missing?

- What are some possible reasons that Grade 6 would have 35% of the students missing an SGP?

- What is the significance of including data for students with missing SGPs in this graph?

Jefferson County Elementary School

Slide 18:

NOTE: This graph represents **ONLY** students with SGPs from **Jefferson County Elementary School**.

- Which grade level appears to have shown the most growth?

- Which grade level appears to have shown the least growth?

- Which grade level would you guess has the highest percentage of students passing the SOL test?

- Based on these data, on which grade level(s) would you focus more of your improvement efforts?

- What are the concerns about focusing ONLY on students with SGP data?
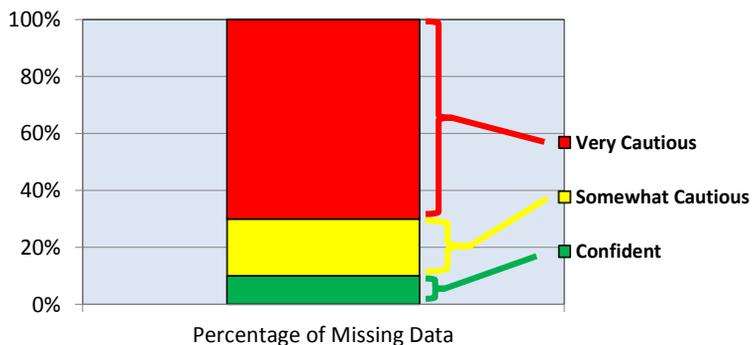
Jefferson County Elementary School

Missing Data: Guidance

The percentage of missing data affects whether your results are representative of the group being tabulated. This impacts whether it is appropriate to make inferences about the whole group from any aggregate results.

Percentage of Missing Data

It is important to consider missing data and to ensure it is reflected in aggregate calculations and reports.

19

Looking at SGP data: The table below depicts Student Growth Percentile data for a different school, called **Sweetwater County Elementary School. How do the SGP business rules for missing data affect your interpretation of the table below?**

Test Level	Subject	Test	Missing SGP		Low SGP		Moderate SGP		High SGP		Totals	
			n	%	n	%	n	%	n	%	n	%
3rd Grade	English Reading	Reading	48	100%	-	-	-	-	-	-	48	100%
4th Grade	English Reading	Reading	6	9%	17	27%	28	44%	13	20%	64	100%
5th Grade	English Reading	Reading	4	5%	29	34%	24	28%	28	33%	85	100%
6th Grade	English Reading	Reading	11	14%	33	43%	14	29%	18	24%	76	100%
3rd Grade	Mathematics	Mathematics	37	100%	-	-	-	-	-	-	37	100%
3rd Grade	Mathematics	Plain English Mathematics	11	100%	-	-	-	-	-	-	11	100%
4th Grade	Mathematics	Mathematics	5	9%	22	39%	9	15%	20	36%	56	100%
4th Grade	Mathematics	Plain English Mathematics	1	11%	7	78%	-	-	-	-	8	100%
5th Grade	Mathematics	Mathematics	8	10%	31	39%	19	24%	21	27%	79	100%
5th Grade	Mathematics	Plain English Mathematics	2	33%	-	-	-	-	4	67%	6	100%
6th Grade	Mathematics	Mathematics	7	11%	20	30%	21	31%	20	29%	68	100%
6th Grade	Mathematics	Plain English Mathematics	3	100%	-	-	-	-	-	-	3	100%
7th Grade	Mathematics	Mathematics	4	67%	1	33%	-	-	-	-	5	100%

So what if we pulled out just the Reading SGP for Sweetwater County Elementary School…

Test Level	Subject	Test Code	Student Growth Percentile Levels									
			Missing SGP		Low SGP		Moderate SGP		High SGP		Totals	
			n	%	n	%	n	%	n	%	n	%
3rd Grade	English Reading	Reading	48	100%	-	-	-	-	-	-	48	100%
4th Grade	English Reading	Reading	6	9%	17	27%	28	44%	13	20%	64	100%
5th Grade	English Reading	Reading	4	5%	29	34%	24	28%	28	33%	85	100%
6th Grade	English Reading	Reading	11	14%	33	43%	14	19%	18	24 %	76	100%

21

Below the Reading SGP data for **Sweetwater County Elementary School** are displayed on a bar graph. Are there any reasons to be concerned about the percentage of missing SGP data here?
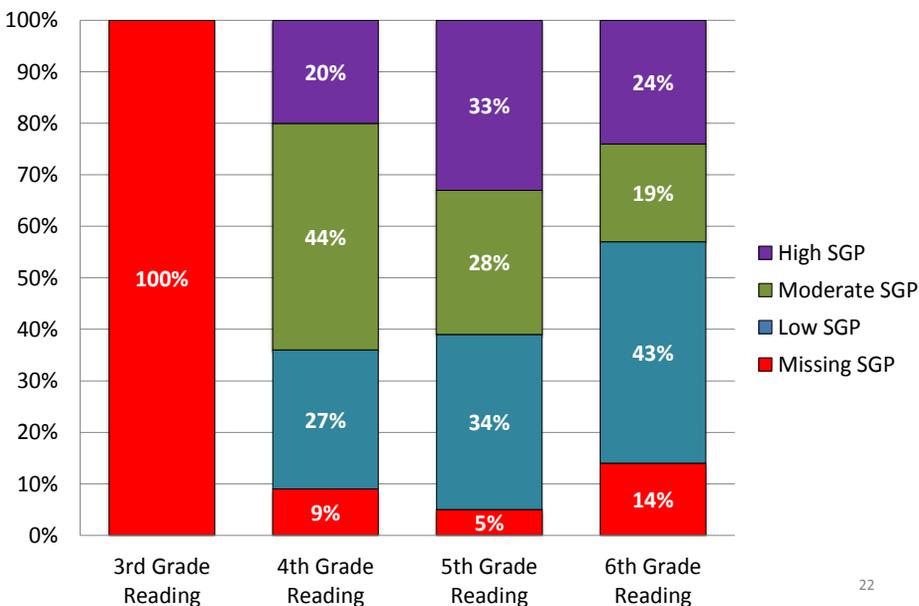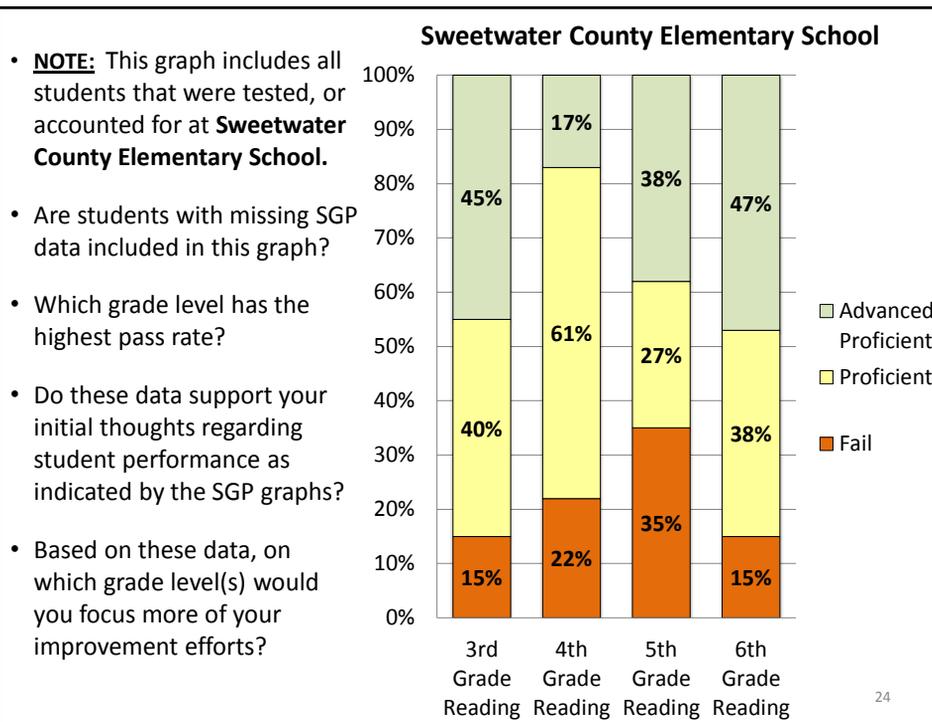

22

Looking at SOL Proficiency Data: There is value in looking at SOL Proficiency Data to understand what percentage of students are meeting the necessary achievement benchmarks for a given subject. Let's look at the SOL data for **Sweetwater County Elementary School**.

Test Level	Subject Code	Test Code	SOL Proficiency Level									Totals	
			Not Attempted		Fail		Proficient		Advanced Proficient				
			n	%	n	%	n	%	n	%	n	%		
3rd Grade	English Reading	Reading	-	-	7	15%	19	40%	22	45%	48	100%		
4th grade	English Reading	Reading	-	-	14	22%	39	61%	11	17%	64	100%		
5th grade	English Reading	Reading	-	-	30	35%	23	27%	32	38%	85	100%		
6th grade	English Reading	Reading	-	-	11	15%	29	38%	36	47%	76	100%		

23

- **NOTE:** This graph includes all students that were tested, or accounted for at **Sweetwater County Elementary School.**

- Are students with missing SGP data included in this graph?

- Which grade level has the highest pass rate?

- Do these data support your initial thoughts regarding student performance as indicated by the SGP graphs?

- Based on these data, on which grade level(s) would you focus more of your improvement efforts?

Sweetwater County Elementary School

24

Analyzing SGP Levels next to SOL Proficiency Levels can inform the decision-making process. Based on the stacked bar graph on the right for SOL Proficiency Levels at **Sweetwater County Elementary School**, are you still concerned about the grades that initially caught your attention in the stacked bar on the left for Student Growth Percentile Levels?
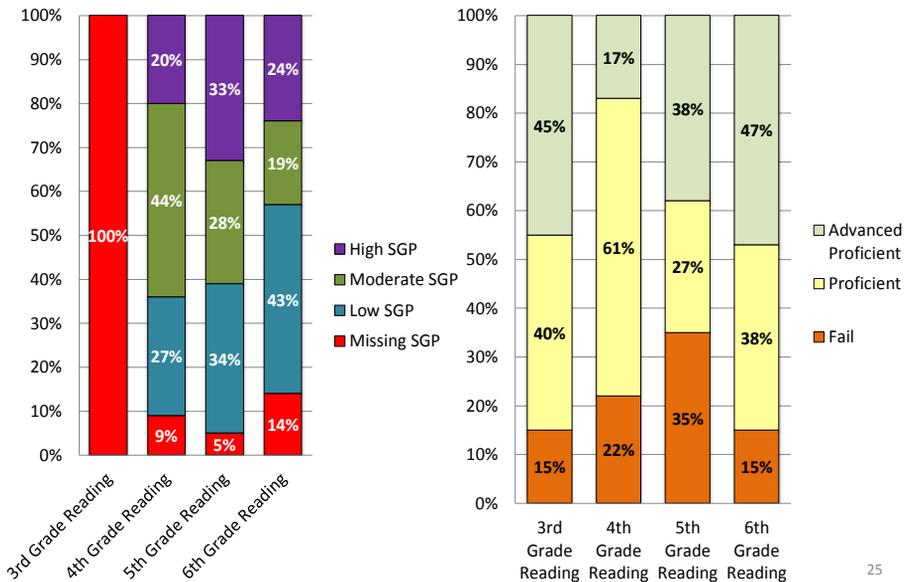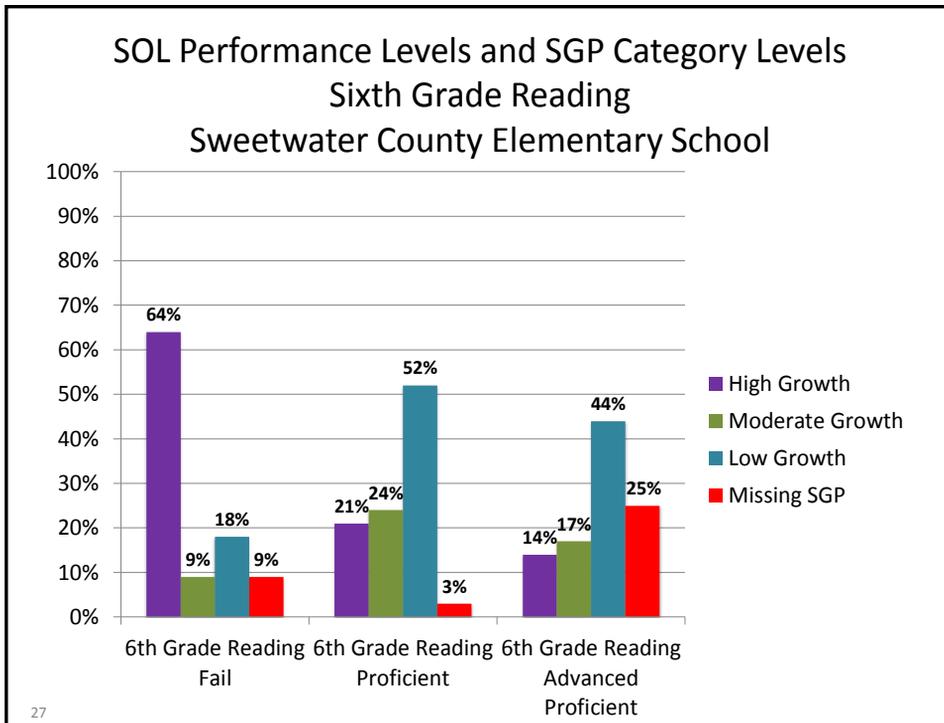

25

Looking at SOL & SGP data collectively: Although there are reasons for looking at SGP or SOL data in isolation, the risk of making errors in judgment increases when the data are viewed separately. VDOE recommends that SGP and SOL data be used together, and with other data to offer a more comprehensive look at student performance. Below the SOL proficiency and SGP data from **Sweetwater County Elementary School** are expressed in that manner.

Test Level	SOL Proficiency Level	Student Growth Percentile Level									
		Missing SGP		Low Growth		Moderate Growth		High Growth		Total	
		n	%	n	%	n	%	n	%	n	%
6th Grade English Reading	Fail	1	9%	2	18%	1	9%	7	64%	11	100%
	Pass Proficient	1	3%	15	52%	7	24%	6	21%	29	100%
	Advanced	9	25%	16	44%	6	17%	5	14%	36	100%

26

SOL Performance Levels and SGP Category Levels
Sixth Grade Reading
Sweetwater County Elementary School

27

Session III Activity

- <u>Student</u>   <u>Grade</u>   <u>SGP</u>   <u>SOL</u>

- Student A - Grade 6   SGP = 30   SOL = 498

- Student B – Grade 6   SGP = 81   SOL = 510

- Student C – Grade 6   SGP = 55   SOL = 398

- Student D – Grade 6   SGP = 30   SOL = 450

- Student E – Grade 6   SGP = none   SOL = 591

28

In Conclusion

When used appropriately, SGP data can provide additional information about student performance and for enhancing decision making processes that will help move all students to higher levels of achievement. Always consider the following when conducting analyses of SGP data and reports:

- Consider the impact of small *n* counts
- Investigate and account for missing data
- Review the accuracy of the teacher information for the students (this link was established through the MSC data)
- Refrain from looking at data in isolation

29