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From: Adam Larsen, Assistant Superintendent

To: Board of Education

Cc: Thomas Mahoney, Superintendent

Re: October 2020 Board Report

Northwest Evaluation Association (NWEA) Measures of Academic Progress (MAP)

NWEA's Measures of Academic Progress (MAP) test has been used in the school district since the Spring 2008 testing season. This assessment is a form of computer-adaptive testing, where the test taker is presented a series of questions that is tailored to that particular student's academic level. If a student answers a question correctly, the computer will give the student a more difficult question. If the next question is answered incorrectly, the following question will be easier. The number of questions in the test bank is vast, and no two students take the same exact test. This approach offers a number of advantages over traditional testing, including reduced standard error of measurement, less time spent testing, and fewer questions required for each student. Because the assessment is taken on the computer, results are available immediately after a student completes the test. Reports on student progress are available the next day, and growth is tracked over time (season to season and year to year).

In Oregon, the introduction of the MAP assessment has been along the following schedule:

School Year	Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
2007-2008						S	S						
2008-2009						F, S	F, S						
2009-2010				F, W, S	F, S	F, S	F, S	F, S	F, S				
2010-2011			S	F, W, S	F, W, S	F, S	F, S	F, S	F, S	F, S	F, S		
2011-2012			F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S (SpEd)	F, W, S (SpEd)		
2012-2013			F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S (SpEd/ELL)	F, W, S (SpEd/ELL)	F, W, S (SpEd/ELL)	F, W, S (SpEd/ELL)
2013-2014			F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S (ELL)	F, W, S (ELL)	F, W, S (ELL)	F, W, S (ELL)
2014-2015			F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2015-2016			F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2016-2017			F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2017-2018			F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2018-2019	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2019-2020	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2020-2021	F	F	F	F	F	F	F	F	F	F	F		

F=Fall, W=Winter, S=Spring

We added MAP assessment in grades 9 and 10 again this term as a way to gauge student learning as they enter the high school. We are missing SAT assessments from the spring, which normally drive our instructional discussions and help us plan intervention around student needs.

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The Fall 2020 testing window was recently completed, and 2234 individual test events were recorded. Many personnel are involved in the testing window, including principals, teachers, aides, and tech staff, and all deserve recognition for their efforts.

Predicting the 2021 Illinois Assessment of Readiness (IAR)

NWEA regularly releases updated cutscores that correspond to the state outcome measure that students take in the spring. That assessment is currently known as the Illinois Assessment of Readiness (IAR). While they have not performed a new analysis that correlates MAP scores with the actual IAR assessment, our understanding is that the test is similar enough to the previous assessment (PARCC) that we should use the same cutscores as before. NWEA has updated the linking study to insert IAR language in it, so we will continue to use these cuts until an update is issued.

These cutscores allow school districts to make predictions about which students are expected to meet and not meet expectations when they take the IAR each spring. This analysis is useful both for 1) program evaluation, determining how well the overall curriculum is working to prepare students, and 2) resource allocation, identifying which students need additional support to make the gains they need to close the achievement gap with their peers.

A summary of expected performance in Reading and Mathematics follows. These graphs are used each year to track cohort progress toward the expected goal. By plotting the achievement tests on a consistent scale each term, it allows for easy comparisons to be made after every testing season. On these charts, which will be updated periodically throughout the 2020-2021 school year, predictions of IAR performance based on MAP scores will be plotted alongside actual IAR performance from the same school year.

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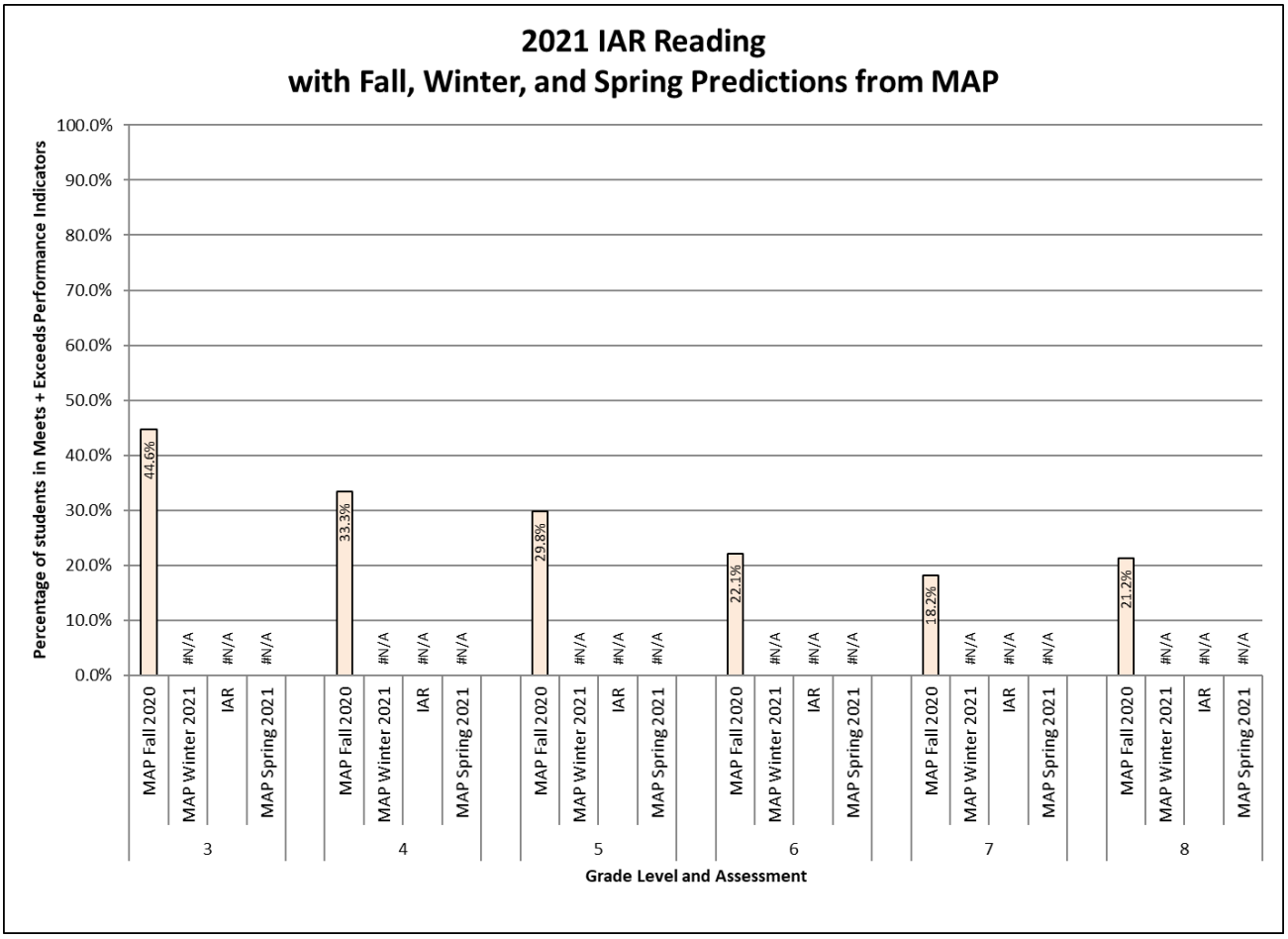

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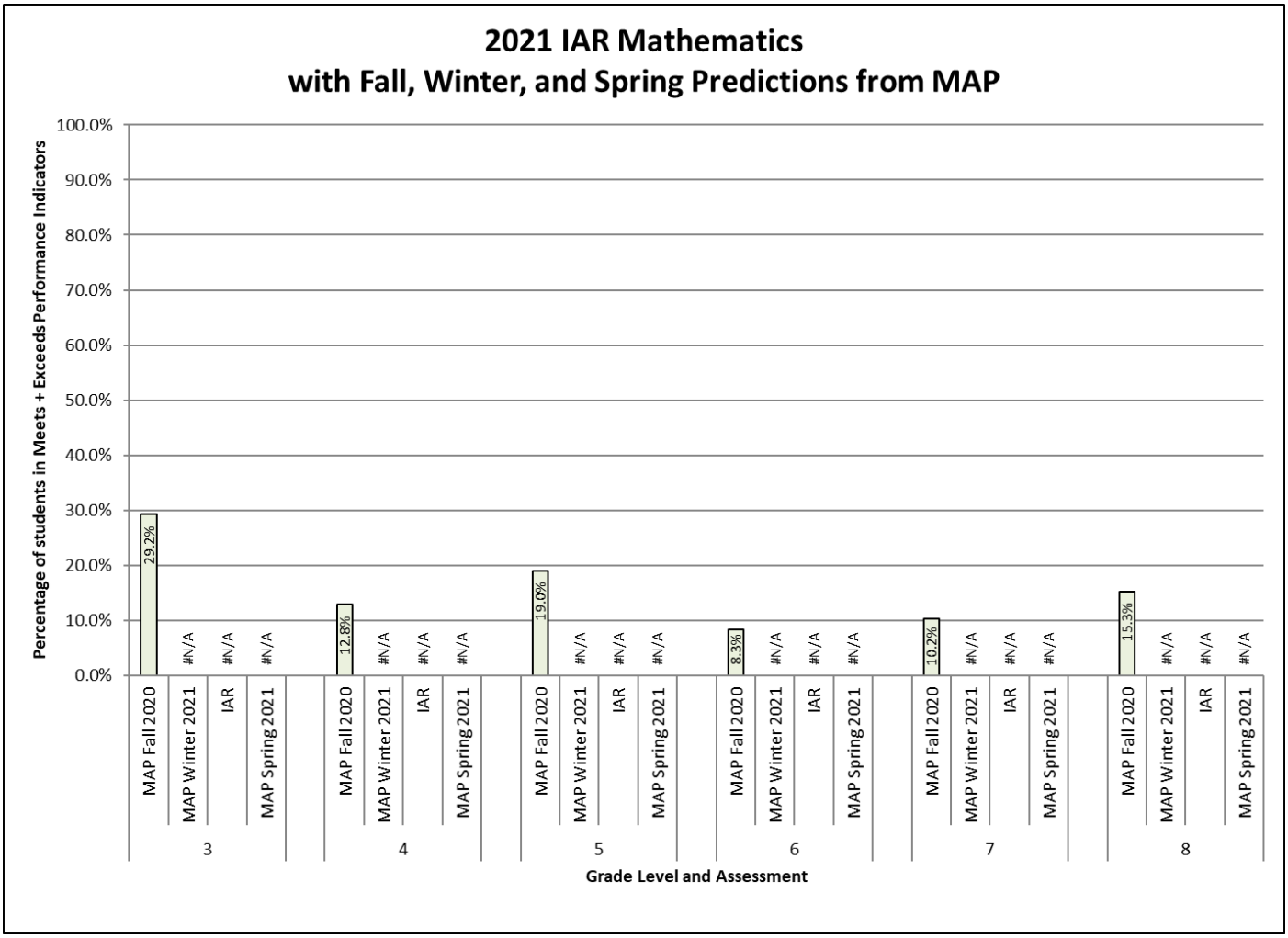


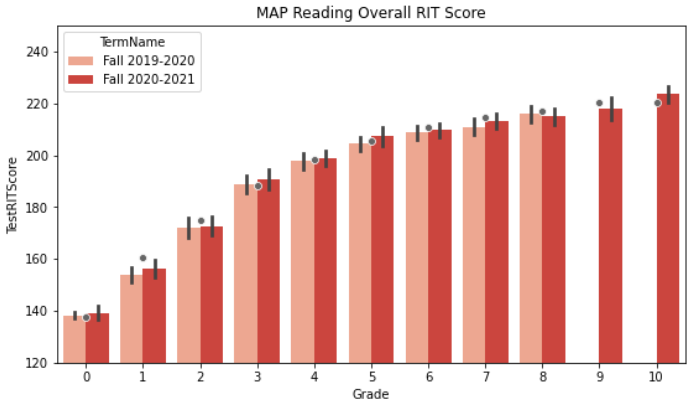
COVID-19 and Learning Loss

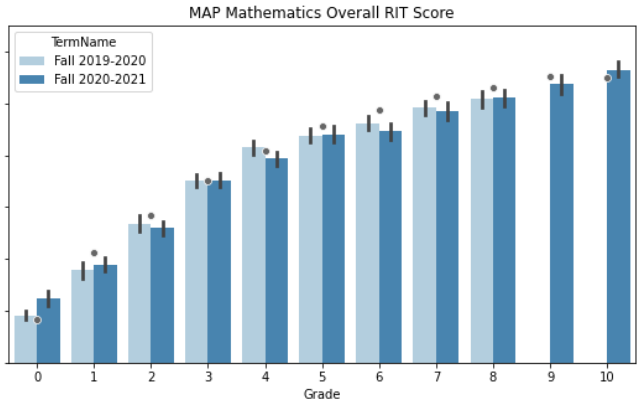
When the emergency began in March, our focus was first on providing food and safety to our students, then to connecting students with devices and Internet access, then instruction. Once we realized that this would continue for some time, and that students would be receiving their instruction remotely for at least a quarter, we began to ask about what this would mean for student learning. Would students progress at a normal rate? How would we know? Does it even matter, when the entire world has been thrown into chaos? We entertained the possibility of administering our progress measure while students were remote but decided against it, based on recommendations from the test vendor and realizing that the logistics would be difficult.

In the fall, most of our students came back to campus, and it was possible to collect growth data for almost everyone. A challenge in computing and comparing growth, however, is that we normally use a Fall-to-Spring window for setting goals and measuring progress toward those goals. Without spring data, this becomes impossible. We had

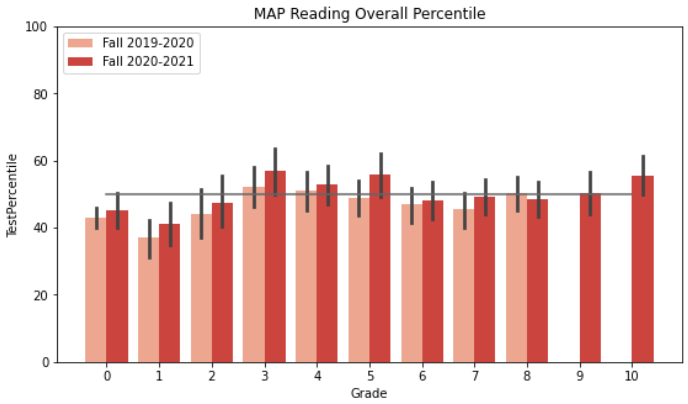
actually started shifting to a Spring-to-Spring model because that is the new paradigm that ISBE is following for school accountability, but we run into the same problem there as well. Fortunately, MAP does issue growth projections for a variety of windows, including Fall-to-Fall. While it is not an intuitive way to think about growth, and involves assessing students immediately after summer loss, it is the only way we can measure growth at this time.

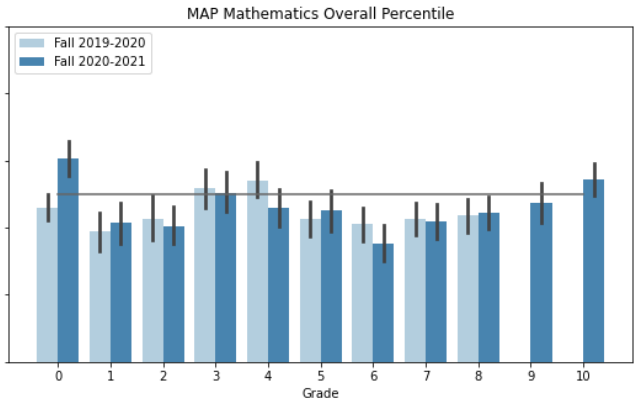
We examined the impact of remote learning in a variety of ways. The first looks at the overall average RIT score by subject and grade level. In each graph, one for reading and one for mathematics, the darker bar represents the current 2020-2021 school year, while the lighter one represents the previous 2019-2020 school year. The gray circle between the pair of bars is the national average. This color scheme is consistent throughout the following graphs. In this examination, reading is generally consistent throughout the grade levels. The bars are roughly the same height in each testing season, and first and second grade appear to be the grades that are the most below the national average. In mathematics, however, there is a marked difference in several of the grades. In the middle to late elementary grades, the current school year appears to have a lower average than the previous year.



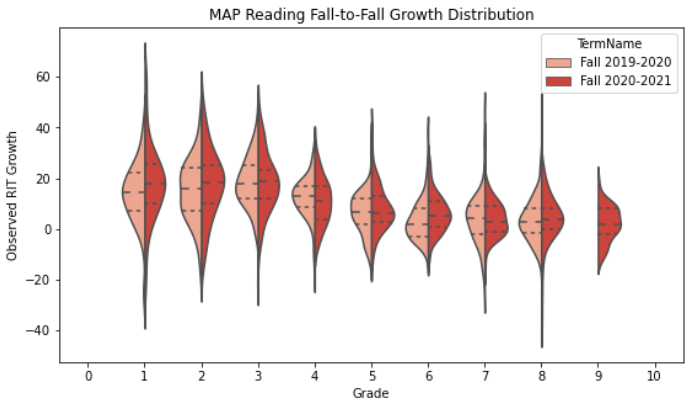


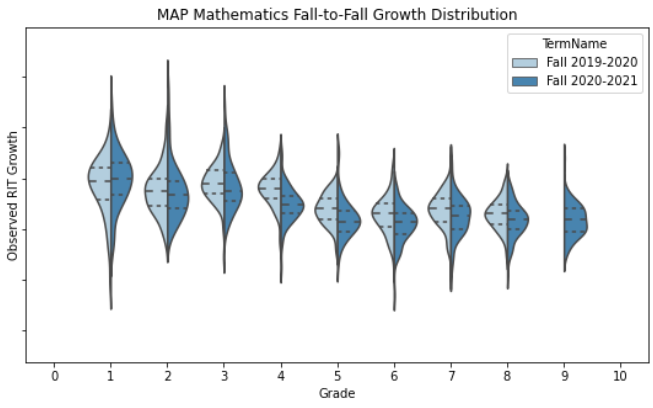
This next set of graphs shows essentially the same set of data, except that it plots the average test percentile instead of the average RIT score. What this does is remove the general upward trend from the graph because all of the grade levels are on the same 0-100 scale instead of a RIT scale. As such, the national median score is 50, which is represented as a gray horizontal line across the grades. We see similar trends here as well, with grades 1 and 2 below the median in reading, but generally consistent across the two years of data. Mathematics again shows worrisome downward trends between the two years, suggesting that math was more affected by the loss of in-person instruction.





These first two graphs have examined the change in attainment, but we must also study growth to see if or how it was affected by this change. The way we evaluate growth is by comparing within-student scores across instructional intervals. In this example, we have pulled the growth scores across two years (Fall 2018 to Fall 2019 and Fall 2019 to Fall 2020) to see if there are differences. Again, we do not normally study growth from fall to fall, but because we have consistently given this measure for so many years, we can go backward to obtain these scores, even if we did not previously use them. The following set of graphs plots smoothed histograms against each other in what is known as a split violin plot. On the left side of each grade (the lighter color), we see the distribution of growth from the previous year, while on the right (the darker color), we see the same construct for the current year. Little stands out on the reading graph except possibly higher growth in grade 6. In mathematics, there are marked differences in the distribution of growth in grades 4, 5, and 6. In each of these grades, the darker blue histogram is clearly shifted downward to a substantial degree. This suggests that the amount of growth seen from Fall 2019 to Fall 2020 is quite lower than the growth seen from Fall 2018 to Fall 2019.





Finally, a second way we look at growth is to compute the percentage of students who made their target growth. Across each instructional interval, the MAP assessment provides a target score where the average student will finish. This is computed by comparing each student against all of the other students across the country who had the same score at the beginning of the interval. As such, the average percentage of students reaching their growth target is 50%, which is represented by a thin gray line in these graphs. Reading appears to be stronger than mathematics again, with an interesting jump in grade 6 as compared to the previous year. In mathematics, the same concerning trend is

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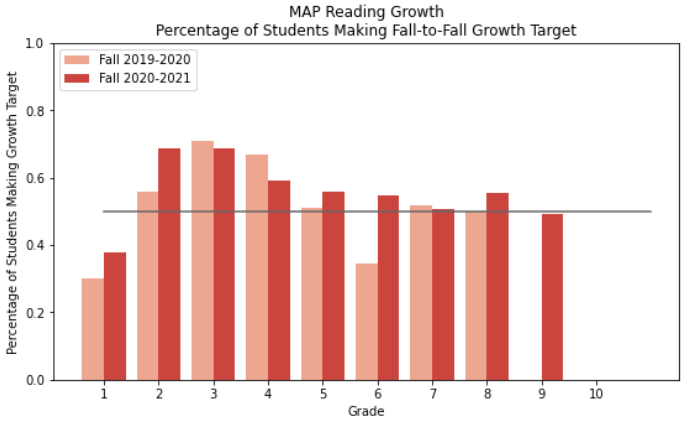
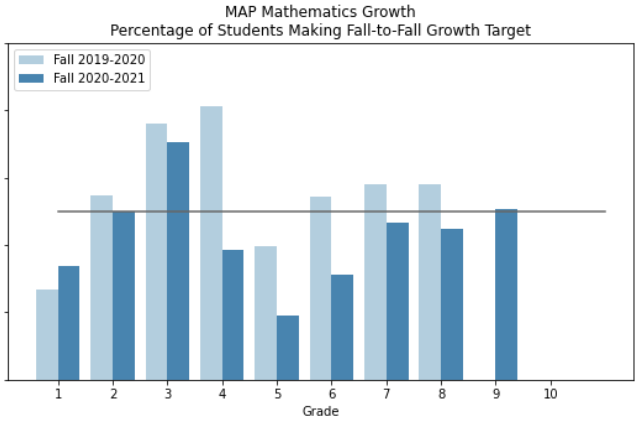
demonstrated here, with far fewer students reaching their growth target than the previous year, and below the 50% target. Taken together, it appears that in mathematics, these grades were greatly affected by the lack of in-person instruction.





Respectfully Submitted,

Adam P. Larsen
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