



Winter 2022 MAP Results

Prepared by EdLight, PBC
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What is MAP?

NWEA MAP is a **Diagnostic Assessment**

MAP is taken by about **12 million students** annually.

MAP is an **adaptive assessment**. If students answer questions correctly, it gives harder questions. If students answer incorrectly, it gives easier questions.

The MAP test has 2 primary goals:

1. Calculate a **scaled score**, called the “RIT”, that estimates student ability whether they are above or below grade level
2. Calculate a **growth score** that measures improvement over time

Types of Assessment

Formative Assessment
micro-assessment embedded or aligned to curriculum (e.g., exit tickets, quizzes)

Summative Assessment
Infrequent, larger assessments of performance against grade level standards (e.g., MCAS, benchmark assessments)

Diagnostic assessment
Adaptive assessments that estimate student ability above or below grade level

How does MAP measure achievement?

MAP achievement results are expressed as a scaled score, the “RIT”.

RIT ranges from 140 to 300.

Because so many students take MAP, we can calculate **very strong norms** from RIT scores based on typical performance for 6th graders, 7th graders, etc.

RIT scores can be expressed as a **percentile** compared to all students in that grade, which is useful for comparisons across grade levels.

How are Scaled Scores Calculated?

Scaled scores assume that all students have a certain true ability.

A student with a true ability, X , will get a certain question right 80% of the time.

If our student gets the question correct, their true ability is probably above X .

By comparing the performance of our student on questions of varying difficulty, it generates an estimate of their true ability, expressed as a scaled score.

A scaled score is an *estimate* of student ability, not their true ability.

MAP is accurate but not precise

MAP is one of the most accurate assessments on the market.

However, it is not very precise.

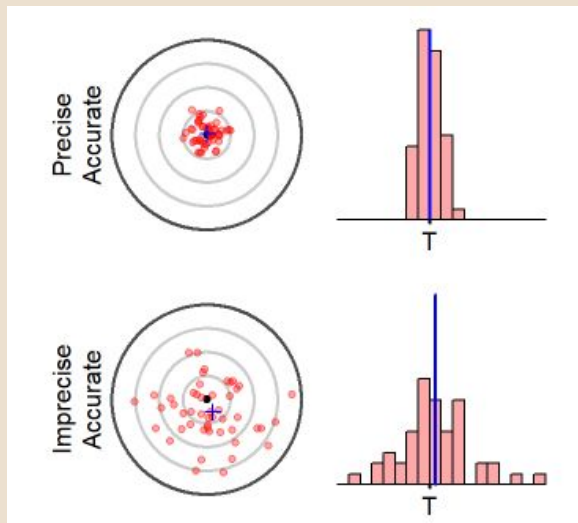
There is a tendency to overestimate the precision of diagnostic assessments. It's just a ~40 minute test. It is not possible to assess how well a student is doing on all content in 40 minutes.

The reality is that **no single assessment is a precise measure of individual student ability.**

The more that we can summarise results to get larger samples, the more reliable the results become.

We can be more confident in the results as we aggregate up from Individual Student → Class → Grade Level → School.

MAP is Accurate but not Precise



MAP's Growth Percentiles Are Helpful (But Noisy)

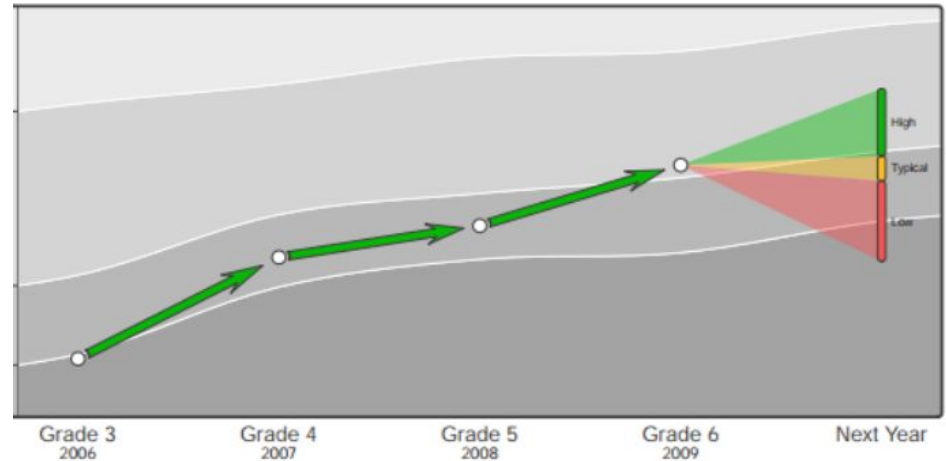
MAP's large sample size helps to calculate growth scores.

Growth scores show how common / unusual score changes are across tests.

Growth scores are calculated compared to students with a similar score history.

There is a lot of volatility in growth scores, especially Fall to Winter growth.

Good growth scores can be thought of as necessary but not sufficient – there may be cases where no students in MAP's sample made enough progress.



Summary of the MAP Test

- MAP measures student ability above or below grade level
- MAP uses its large sample size to estimate achievement through a scaled score (the RIT score), and growth by comparing progress across students (Growth percentiles)
- MAP is accurate but not precise
- Aggregating to larger sample sizes increases reliability
- Good growth on MAP is necessary but not sufficient
- MAP's growth scores are both helpful and noisy

MAP Results

What are we looking at?

Achievement: The Average percentile on RIT.

If we looked at just the RIT score, the Elementary School would always look lower than the middle school. Instead we look at students' RIT Percentile, which compares the RIT relative to other students in their grade.

Growth: The Average Conditional Growth Percentile from Fall to Winter.

Prediction of MCAS Performance

Predicted % Meeting / Exceeding Expectations NWEA compared MAP performance to MCAS performance. They generated cut scores to predict MCAS performance from RIT scores. This shows the Predicted Percentage of students who will be Meeting or Exceeding Expectations on MCAS.

Number of Tested Students
Beware small samples!

subject	RIT Percentile	Growth Perce...	Projected % ME	Students
Language	51.8	52	-	1,118
Mathematics	42.6	48	22%	1,152
Reading	51.8	48	42%	1,156
Science	51.1	47	-	210

What are we looking at? Distribution Charts

The primary table is focused on average performance.

No student is average.

These charts show the distribution of achievement / growth.

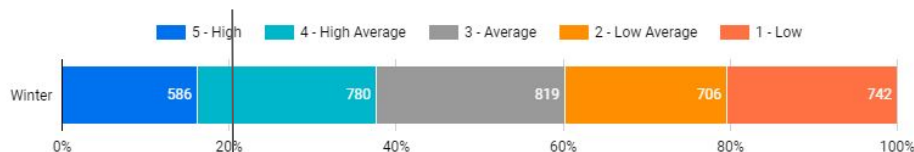
We look at how many students had a RIT / Growth percentile between:

- 0-20
- 20-40
- 40-60
- 60-80
- 80-100

We would expect exactly 20% of students to be in each bucket. A bucket with more (fewer) than 20% of students is over (under) represented relative to all schools who took MAP.

What was the distribution of Performance?

Achievement Quintiles



Growth Quintiles



Achievement: The “High” group has less than 20% of students in achievement – there are fewer high performing students at FRCS than expected.

Growth: The “High” group has more than 20% of students – there are more high growth students at FRCS than expected.

Overall, Results were within the “Normal” Range

subject	RIT Percentile	Growth Perce...	Projected % ME	Students
Language	51.8	52	-	1,118
Mathematics	42.6	48	22%	1,152
Reading	51.8	48	42%	1,156
Science	51.1	47	-	210

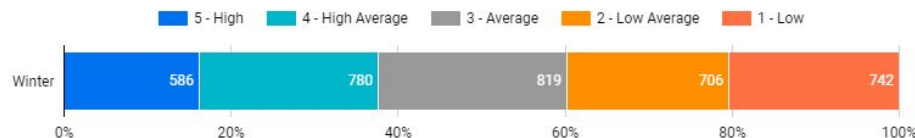
Overall FRCS performed about average in both achievement and growth.

Math achievement was lower than Reading / Language achievement (43rd percentile vs to 52nd percentile)

FRCS had both more high growth students and more low growth students than expected. 25% of students were in the top growth quintile and 27% of students were in the lowest growth quintile.

What was the distribution of Performance?

Achievement Quintiles



Growth Quintiles



The Testing Environment is not Driving the Results

- Overall, the testing environment was comparable between Fall and Winter
- In many grades / subjects, the testing environment improved from Fall to Winter, with more students taking longer on the test and guessing less.
- This has been a hard year for everyone. FRCS had individual students who struggled with motivation on MAP. Like every school.
- Excluding these students from the analysis does not impact the overall conclusions of the analysis

Did the Testing Environment Change?

school_name

Min Test Duration
20

subject	school_year	term	Students Tested	Avg Test Duration (min...	% < Min Test Duration	Avg Guess Percentage
Language	2020-2021	Spring	557	49	1.8%	3
		Fall	1,173	40	9.7%	3
	2021-2022	Winter	1,118	44	6.5%	2.6
Mathematics	2020-2021	Spring	569	53	1.1%	2.9
	2021-2022	Fall	1,210	50	3.9%	2.1
		Winter	1,152	49	3.1%	2.1
Reading	2020-2021	Spring	556	57	1.6%	5
	2021-2022	Fall	1,207	54	4.2%	4.5
		Winter	1,156	56	5.4%	4.2
Science	2021-2022	Fall	204	31	14.7%	3.4
		Winter	210	33	9.0%	4.2

Results by School

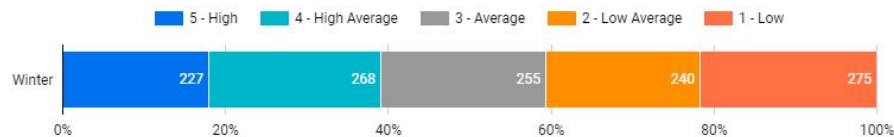
Elementary School Results

subject	RIT Percentile	Growth Perce...	Projected % ME	Students
Language	52.3	57	-	415
Mathematics	41.3	50	24%	425
Reading	53.7	53	43%	425

- In Language, growth was above average (57) and achievement was slightly above average (52).
- In Math, average growth (50) and below average achievement (41st percentile) means that students did not gain ground.
- In Reading, slightly above average growth (53) helped improve the projected % Meeting / Exceeding from 39% in Fall to 43% in Winter.

What was the distribution of Performance?

Achievement Quintiles



Growth Quintiles



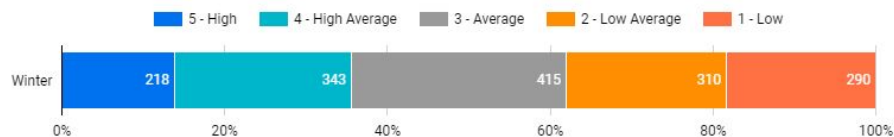
Middle School Results

subject	RIT Percentile	Growth Perce...	Projected % ME	Students
Language	51.5	53	-	513
Mathematics	43.2	51	21%	531
Reading	51.9	50	41%	532

- In Language, growth was slightly above average (53) and achievement was slightly above average (52).
- In Math, average growth (51) and below average achievement (43rd percentile) means that students did not gain ground.
- In Reading, average growth (50) maintained about average achievement (52).

What was the distribution of Performance?

Achievement Quintiles



Growth Quintiles



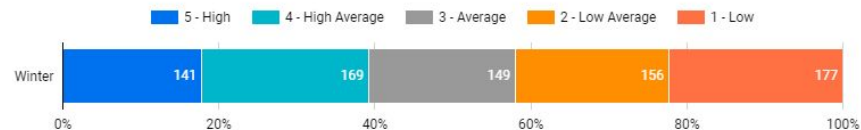
High School Results

subject	RIT Percentile	Growth Perce...	Projected % ME	Students
Language	51.5	39	-	190
Mathematics	43.6	34	-	196
Reading	47.7	32	-	199
Science	51.1	47	-	210

- In Language, growth was low, at the 39th percentile on average. This low growth reduced achievement from the 56th percentile to the 51st on average.. 40% of students had a growth percentile below 20.
- In Math, growth was also low (34), reducing achievement from close to average (48) in Fall to below average (44). 43% of students had a growth percentile below 20.
- In Reading, growth was similarly low (32) again reducing achievement noticeably (57th percentile in Fall to 48th percentile in Winter). 48% of students had a growth percentile below 20
- Growth (47) and achievement (51) were close to average in Science.

What was the distribution of Performance?

Achievement Quintiles



Growth Quintiles



High School Results (continued)

- The test environment did get somewhat worse for the high school in Math and Reading in the Winter
- However, the high school results are **not fully explained by a worse testing environment.**
- Excluding students who spent less than 20 minutes on the test, growth was still low in Language (41), Math (35), and Reading (34).

How Did FRCS Perform on Average?

school_name: FRCS High (1) ▾

Test Duration (minutes)

subject ▾

> ▾ 20

subject	school_year	term	RIT	RIT Percentile	Growth Percentile	Projected % ME
Language	2021-2022	Fall	222.5	59	-	-
		Winter	220.6	53	41	-
Mathematics	2021-2022	Fall	227.1	48	-	-
		Winter	226	45	35	-
Reading	2021-2022	Fall	223.7	57	-	-
		Winter	220.6	50	34	-
Science	2021-2022	Fall	215	55	-	-
		Winter	215	52	48	-

Results by Student Group

Race / Ethnicity in Grades 2-8

We combine student group performance across grades 2-8 in order to have sufficient sample size for all race / ethnicity groups

- “Other” includes Multi-racial, Native American, Pacific Islander / Native Hawaiian, and Other / Do Not Identify

In Language, Black students have somewhat below average achievement (46) and somewhat above average growth (53), resulting in insufficient progress toward closing the achievement gap.

In Math, Black and Hispanic students had below average achievement and below average growth, resulting in a widening achievement gap.

In Reading, Black students had somewhat below average achievement (47) and average growth (51) resulting in insufficient progress toward closing the achievement gap.

test_subject	K8 / HS	Race / Ethn...	RIT Percentile	Growth Percenti...	Students
Language	2-8	Asian	73	58	83
		Other	60.3	55	57
		White	56.8	57	209
		Hispanic	53.3	57	56
		Black	45.5	53	523
Mathematics	2-8	Asian	70.5	52	86
		White	50.7	52	214
		Other	45.5	57	59
		Hispanic	42.2	45	57
		Black	34.3	49	540
Reading	2-8	Asian	72.2	54	85
		White	58.1	54	216
		Other	57.9	52	58
		Hispanic	55.2	51	54
		Black	46.7	51	544

Race / Ethnicity in High School

High school had lower overall performance than Grades 2-8 and different patterns in racial performance than 2-8, so we consider performance by race / ethnicity separately for the high school.

- There are fewer tested students in high school and the Asian and Hispanic groups are too small to examine independently. We added Asian and Hispanic to the “Other” group.

In Language, White students had the highest achievement and growth. Black students had low growth, creating an expansion of the achievement gap.

In Math, all students had below average growth. Black and “Other” students had low growth. Black achievement was low.

The pattern in Reading is similar to Math.

In Science, all students were closer to average growth, though Black students again had the lowest growth and achievement.

test_subject	K8 / HS	Race Condensed	RIT Percentile	Growth Percent...	Students
Language	HS	White	66.3	52	45
		Other	61.2	39	28
		Black	43.5	34	117
Mathematics	HS	White	58.5	43	46
		Other	53.2	26	24
		Black	36.4	33	126
Reading	HS	White	59.2	41	47
		Other	55.3	27	28
		Black	41.5	30	124
Science	HS	White	63.5	48	51
		Other	62.1	55	31
		Black	43.6	45	128

Gender

The most striking pattern in results by Gender identification is lower growth and achievement at the High School by Male students in Reading.

- Male achievement and growth were also lower in Language at the High School.

How Did Each Grade Perform?

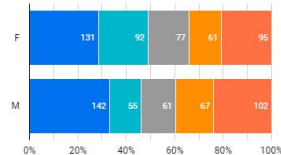
Term: Winter 2021-2022 (1) ▾

Min Test Duration
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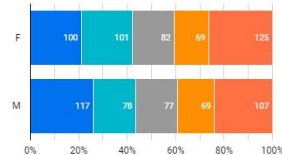
Grade ▾

test_subject	K8 / HS	gender	RIT	RIT Percentile	Growth Percentile	Projected % ME	Students
Language	2-8	M	203.1	49	54	-	447
		F	207	55	55	-	481
	HS	M	214.3	42	34	-	87
		F	223.7	59	42	-	103
Mathematics	2-8	M	205.9	44	52	25%	462
		F	205.7	41	49	20%	494
	HS	M	224.9	43	35	-	91
		F	225.7	44	34	-	105
Reading	2-8	M	204.8	51	54	39%	467
		F	207.1	54	50	44%	490
	HS	M	212.4	39	26	-	92
		F	223.5	55	37	-	107
Science	HS	M	213.9	49	47	-	96
		F	215.3	53	47	-	114

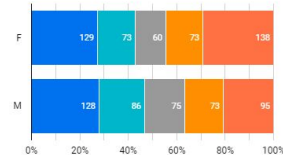
Growth Quintiles - Language



Growth Quintiles - Math



Growth Quintiles - Reading



Specialized Services

Growth was at least as strong by students receiving special education or english language learner services, compared to students receiving no specialized services.

test_sub...	Student Group	RIT Percentile	Growth Percentile	Students
Science	No Special Services	54.3	49	193
	English Language Learner (ELL)	16.8	36	4
	Special Education (SPED)	14.8	30	13
Reading	No Special Services	56.7	49	975
	English Language Learner (ELL)	25	46	84
	Special Education (SPED)	23.9	47	117
Mathemat...	No Special Services	47.1	47	974
	English Language Learner (ELL)	17.7	51	83
	Special Education (SPED)	16.6	47	116
Language	No Special Services	56.5	51	948
	English Language Learner (ELL)	26.3	52	81
	Special Education (SPED)	23.1	56	109

Growth By Incoming MCAS Level

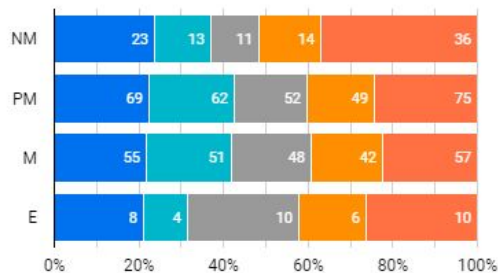
Growth percentiles were lower for students who scored “Not Meeting” on the Spring 2021 MCAS, resulting in widening gaps.

Growth was the same for students in “Partially Meeting” and “Meeting”.

Students with “Exceeding” scores grew more in Reading than in Math.

Subject	MCAS Level	RIT Percentile	Growth Percentile	Students
Mathematics	NM	17	43	97
	PM	36	50	312
	M	59.1	50	257
	E	78.4	47	38
Reading	NM	19.9	41	95
	PM	44.3	50	309
	M	69.4	50	256
	E	87.3	60	39

Growth Quintiles - Math



Growth Quintiles - Reading

