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“MAP isn’t just about helping teachers improve instructional strategies (which is amazing), but it is also a tool to help students think about their future selves.”

— Doug Magee, Dean of Curriculum Innovation and Design and Teacher,
Church Farm School, PA
Foreword

All students have a right to be measured equally well. This aspect of equity is often ignored and even disdained by those who believe all students can follow the same learning path to identical learning goals. Measuring equally well, particularly when the test purpose is to inform instruction, requires that an assessment identify each student’s current performance level, with the same precision for students well above or well below grade level as for those in the middle of the pack.

Further, the student has a right to receive instruction at a difficulty level for which he or she is ready to learn. If a student has not yet mastered addition, subtraction, multiplication, and division, it is ludicrous to present advanced algebraic concepts simply because they are included in the grade level content standards. It is just as unreasonable to restrict a student to ninth grade math if that student has already learned calculus outside of school.

Measures of Academic Progress® (MAP®) is an assessment product—from Northwest Evaluation Association™ (NWEA™)—aligned to rigorous state standards, that helps educators identify the right level of instruction for students, regardless of their place on the continuum of ability and achievement. With a stable vertical interval scale to measure growth, and the normative achievement and growth data provided by NWEA, teachers can help students set challenging and achievable growth goals that can propel them toward proficiency and beyond by helping them to know what is possible. If teachers start in the right place, using MAP results in conjunction with all else they know about teaching, learning, and their students, then they can plan the right learning path for each one.

At the not-for-profit NWEA, our mission is Partnering to help all kids learn®, and our bottom line is how many students we help and how much we help them. We live the mission and are driven by the desire to serve, as can be attested by our partners in all 50 states, the District of Columbia, and more than 120 countries. We have grown steadily since our original incorporation, even in hard financial times. We’ve achieved this growth through continually improving our products and services and through working with our partners to determine how to better serve them. This desire to improve may be manifest through obvious improvements, such as better accommodations for students with special needs, more useful reports, and groundbreaking research, or by subtler fine-tuning of the measurement model and software driving the assessments. Regardless of the source of improvement, our partners can be assured that, with each passing year, NWEA products, including MAP, will be strengthened with an eye to providing better information about students to support teachers.

— Raymond Yeagley, Vice President & Chief Academic Officer, NWEA
01

Assessment is a tool that works
What good assessments do

It seems that at any given time of year, assessments are in the headlines. New laws, well-meaning initiatives, and opt-out buzz are creating a chaotic, often antagonistic landscape for educators and concerned parents alike. We believe this landscape is artificial and counter-productive for all sides, but most crucially for the students, who are the beating heart of all our efforts.

Without setting expectations based on real data, educators simply can't plan for and support the growth of every child. Fair and accurate assessment tools that empower educators to provide this are absolutely integral to achieving equity in America’s classrooms.

Educators use assessments to take the guesswork out of questions around a student’s academic performance. Assessments answer questions around student growth with data. They are designed for various purposes, but fall into three broad categories.

<table>
<thead>
<tr>
<th>Formative Assessments</th>
<th>Interim Assessments</th>
<th>Summative Assessments</th>
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<tbody>
<tr>
<td>Formative assessments provide information in the moment to help teachers adapt instruction; this process helps to collect critical information about student progress and to uncover opportunities for review, feedback, and adjustments to instruction.</td>
<td>Interim assessments provide an objective measure of student achievement, progress, and growth over time; the results can be used to differentiate instruction, allocate resources, determine placement in special programs, and evaluate program effectiveness. These assessments are given at regular intervals through the school year.</td>
<td>Summative assessments provide a summary of contextualized student achievement after completion of an instructional unit or course, including accountability tests at the end of a semester or school year.</td>
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<tr>
<td>Used to judge if a student understands a critical concept</td>
<td>Used to track growth and adjust individual instruction over a period of time</td>
<td>Used to confirm a student’s proficiency according to a national or state standard</td>
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Seeing beyond the negative

It’s quite difficult to find statistics that paint a flattering picture of education in America. What’s worse, the scary numbers dominating the headlines simply do not reflect our common purpose of creating better lives for all our children. Let’s take a closer look at an example of a “scary number.”

According to some measures, up to 70% of students are not achieving proficiency on today’s summative tests. If that’s true, then the first step in fixing it is for teachers to know those students’ starting points in order to set goals and guide their progress.

Along the way, a student still may not be rated as proficient on summative assessments, but this does not mean that he or she is not growing academically. In reality, the real story isn’t the “scary number,” but the substantial growth of that student—the unsung gains that informed, dedicated teachers make with students all along the spectrum of achievement.

What if the narrative of real growth replaced all those scary numbers? How would that change everyone’s perception of education in America and encourage the growth that eventually eclipses the scary numbers altogether?

The fact is that, thanks to assessment, we can actually see heroic growth. Consider the fifth grade student who starts the year reading at a second grade level. In June, his teacher rightfully celebrates his achievements because he is now reading like a fourth grader—still not proficient, but growing remarkably. We believe that is cause for celebration, and without properly assessing growth, that bright window might just remain shuttered.

Imagine if we applied the same myopic negativity to business. If a start-up has yet to reach the break-even point, but shows consistent positive growth in sales and market share, is that really “bad news” for investors? Our students deserve recognition for their progress, and our society requires a clearer picture of what our schools accomplish every day.

Our students deserve recognition for their progress, and our society requires a clearer picture of what our schools accomplish every day.
Preparing an assessment
Measuring growth accurately and fairly isn’t easy, but nobody should be willing to accept a measure that is just “good enough.” In order to create a growth assessment that works, NWEA:

1. aligns test questions to content standards
2. uses a vertical scale of measurement
3. matches question difficulty level to student ability
4. uses a deep pool of questions to increase precision
5. ensures fairness through empirical bias and sensitivity reviews
6. defines the purpose of the assessment
7. provides context for growth

Let’s see what’s involved in each area.

1. **Align test questions to content standards**

Standards lay out a clear, consistent understanding of what students are expected to learn, and the sequence in which they are expected to learn it. Solid curriculum plans are based around them.

The standards define concepts of what we want students to master, whether in reading, English language arts, mathematics, science, or other areas—all the way from beginning foundations to advanced expressions.

The first requirement to measure student achievement and growth fairly and accurately is that the questions that make up a particular test reflect the content of the standards.

2. **Use a vertical scale of measurement**

After questions are aligned to standards, you need a scale that identifies the difficulty of the items. Here, an analogy may be useful.

Before 1929, nearly every company manufacturing machined equipment also manufactured and marked the tools to service their equipment—and they all used different scales. This meant that a wrench marked ½” from P&C Manufacturing in Oregon might not fit a bolt marked ½” manufactured by the Armstrong Brothers in Chicago. Matching them up and comparing them all is a fun hobby for collectors, but would have been a real impediment to anyone trying to get some work done.

Unsurprisingly, researchers have found that using a combination of different assessment scales is an unstable method for measuring academic growth over time. The solution is to use a single “vertical scale” that spans grade levels. With one long measuring stick in use, no translation is required, and this means that measuring growth increases in accuracy and reliability.
3. Match question difficulty level to student ability

After creating a vertical scale, you must match item difficulty to student ability. Assessments that restrict questions to grade level standards alone have an important role in providing information that school systems, states, and our nation need. Summative assessments given for state accountability purposes are explicitly built for this purpose.

However, when assessments are restricted in this way, we are not able to precisely identify where students who are performing above or below grade level actually achieve—and this represents many, if not most, of our students. How can we achieve real equity in the classroom if educators cannot chart a path forward for low-performing students or continue to encourage growth in high performers?

4. Use a deep pool of questions to increase validity

The more questions an assessment presents to the student, the greater precision we can expect. When there are many items falling at, above, and below the student’s level, educators gain an increasingly detailed view of the student’s achievement. This granularity is what elevates a proper assessment above a simple “pass or fail” event.

This requires not only many questions at each difficulty level along the scale, but also that appropriate questions be presented to each student. Computer adaptive testing (CAT) makes this process manageable and scalable—meaning that it can be repeated with reliable results with larger or smaller groups of students.

5. Ensure fairness through empirical bias and sensitivity reviews

You now have a deep pool of items aligned to content standards, arranged along a vertical scale, and spanning the full range of students you want to measure. However, students come to school from myriad backgrounds—cultural, socio-economic, ethnic, religious, etc.

In addition, all students may not have had the opportunity to learn the material to be tested, or the material may be presented in such a way as to privilege a certain background. These factors all contribute to the potential for bias in an assessment.

NWEA uses practices including Differential Item Functioning (DIF) and bias and sensitivity reviews to reduce bias in the instruments we create. The American Educational Research Association (AERA), American Psychological Association (APA), and the National Council on Measurement in Education (NCME) publish standards on this for test makers to support fairness and to provide consistency in approach across developers.

Follow these links online to learn more about this key element of developing fair and accurate assessments.

NWEA.org/assessments  NWEA.org/assessments/test-item-development
6. Define the purpose of the assessment to determine the accuracy required

Test fatigue and demands on classroom time are widely touted factors in “opt out” discussions. That is why clearly defining the purpose of the assessment and the role of the data educators gather is crucially important. Simply put, a more robust assessment composed of more questions will give a more precise idea of student achievement, but this requires more questions over a wider range of grade levels. How precise do educators need to be, and when?

Balancing the need for data against the time required to do the assessment can be tricky. The ability to determine how precise a measure is needed and tailoring the assessment to provide that while minimizing demands on valuable classroom time is one of the key benefits of computer adaptive tests like MAP.

7. Providing context for growth

Once achievement and growth are accurately measured, a world of instructional opportunity opens—as long as there is accompanying information that provides a context. That’s where the standards come into play and the assessment tool becomes the basis for contextualized comparisons. Two important comparisons we can draw from a vertically scaled score and normative data are “growth compared to peers” and “growth trajectories.”

A teacher certainly benefits from knowing what the student’s score is in relation to all the other students in the classroom. A principal benefits from knowing her or his school’s position within a district, and a district supervisor finds it useful to place a school’s performance in the state and national context. This need is met by establishing growth compared to peers. We’ll dive into how growth data is used by different stakeholders in the next chapter.

Another context is established by looking at the student’s growth trajectory and determining if he or she is on a path to meet a given achievement standard in time. For instance, is a student on track to be ready for college when upon graduation? With new tools like the NWEA College Explorer Tool, students can use their MAP scores to see which colleges and universities they are on track to attend. That’s a whole lot more than just a score—that’s informed use of growth data.
Using growth data is everyone’s job
Partnering to help all students learn

Accurate measurement of student achievement over time along a vertical scale allows educators to accurately determine academic growth for all of their students, but that’s just the beginning of the story. The insights of teachers, parents, administrators, and the students themselves are all critical to the interpretation and usefulness of the data.

Growth data can help all stakeholders answer important questions about student learning.

- **Teachers** can learn what kind of progress their students are making toward agreed-upon learning goals, and how to adjust instruction to meet student needs
- **School principals** can ensure that the students in their schools are tracking toward key milestones, then offer the best professional development to support teachers in their use of timely growth data
- **District administrators** can evaluate their district’s programs for improvement planning. What’s working best? What isn’t working at all?
- **Parents** can learn how their child is progressing and take an informed, active role in growth
- **Students** can gain the knowledge of their progress and get a clear idea of what they need to work on to continue reaching their goals
What is the RIT scale?

After every MAP assessment, each student receives a score that helps pinpoint what he or she knows, is ready to learn, and is projected to achieve. Scores fall on a stable, vertical scale of Rasch Units (aka, RIT). Regardless of the standards alignment of a particular MAP test, each question has a single RIT value associated with it. This underlying design element of the MAP test allows the RIT scale to remain continuous across grades, making it ideal to track student growth in the long term.
Using examples that include MAP interim assessment data, let’s take a look at how the thoughtful use of assessment data can help each stakeholder.

**Support for students and teachers—evaluating achievement and setting goals**

Mr. Waller at Ellington Elementary reviews the math growth projections for all students in his third grade class. He notices Louis has a projected growth RIT score of 183, and based on his state’s cut score ranges, Louis needs to achieve a score of 195.

The two sit together and talk over Louis’ strengths and opportunities. They set a mid-year RIT goal of 190 and an end-of-year RIT goal of 195. They choose a few learning statements from the MAP Learning Continuum to develop into specific student goals. Learning statements represent specific concepts and skills on which the student is assessed. Several of the learning statements they select carry a RIT value between 191–200. Louis and Mr. Waller know that by achieving these learning goals, Louis will progress to where he needs to be by year’s end.

**Support for parents—take an active role in growth**

Louis’ parents are pleased to hear that he has helped to set his own goals for improvement. Thanks to the learning statements he has helped to select for himself, his parents are able to provide on-topic support at home, supplementing the assignments Mr. Waller has provided with free online exercises and guiding his progress. By the end of the year, Louis has exceeded expectations and is performing above the goal he and Mr. Waller set.
Support for principals and teachers—teaching across grade levels

Ellington Elementary School allows for flexible scheduling of the school day. Mr. Waller and the other teachers notice that the three third grade classes have up to five separate groupings for math. Based on this data, the principal decides to implement flexible groupings across the third grade level.

Now, the three math teachers collaborate on teaching math at the same time during the day, with each teacher focusing on one or two groups at a time. Student groups, including the group Louis has been placed in, are adjusted regularly as the students make progress.

Class Breakdown Reports help teachers and school administrators recognize and respond to academic diversity within the classroom. Useful data include the distribution of student scores for all subjects and schools tested. Teachers can drill down from student names and access detailed information about specific skills and concepts students and groups of students are ready to learn.

Support for district administrators—evaluate program success

The Washington School District can use the end-of-year growth data to evaluate how Ellington Elementary School’s reconfiguration of instructional groups impacted student performance, informing decisions on future program development and professional development for other schools in the district.

Projected Proficiency Summary Reports allow district leaders to see systemic strengths and weaknesses, identify positive trends, and plan for changes at any grade level or school within the district.
Support the future—transitioning to new standards using growth data as a bridge

Given that the only constant in the education world these days is change, educators need to have an accurate indication of students’ achievement along a stable continuum in order to provide context and insight on individual progress. Growth data provides vital insights into instructional needs and provides a more complete view of student learning, making it an indispensable tool for transitioning to new standards.

More specifically, growth data allows us to take several key actions.

- **Assess student learning before, during, and after the transition to new standards.** When an assessment measures students with items on, above, and below grade level content, educators receive accurate data on where students are currently performing in relation to standards. They can then chart an instructional plan that moves their students toward new milestones and engages students in goal setting. They can also compare achievement on the current state standards to what is needed on the new standards.

  - Did the student growth in Mr. Waller’s class stand out in some way? Why?
  - Did a certain grade level or school exceed its growth projection? Why?
  - Can the students in a given class use the growth data to own their learning?

- **Support formative conversations and instructional shifts.** The use of growth data creates a space for meaningful conversations among all stakeholders about what is and what isn’t working during the transition to new standards. Examining growth within the context of other factors fosters continued collaboration to get all students on an appropriate learning trajectory. It helps to answer key questions like:

  - Did the student growth in Mr. Waller’s class stand out in some way? Why?
  - Did a certain grade level or school exceed its growth projection? Why?
  - Can the students in a given class use the growth data to own their learning?

- **Evaluate programs.** Schools and districts can use growth data to evaluate curricula and intervention programs, inform changes in instructional practice, and target professional development. Identifying programs that create more growth helps inform decisions on where to invest resources. Using only achievement-level student data does not provide enough information to make a strong case, but by using growth data we can look at questions like:

  - Did the students in our new math program experience higher rates of growth than other students?
  - On which academic standards are students exhibiting insufficient growth?
  - Where do our teachers need to focus instructionally?
  - What kind of professional development will assist our district in targeting areas of insufficient growth?

- **Provide support for teachers and principals to become data and assessment literate.** Educators need to be supported in their professional growth on data literacy, especially in this time of national transition. A recent report from the Data Quality Campaign found that only four states have comprehensive plans to assist teachers in using data; only 16 states require teachers to demonstrate data literacy as a condition of certification. These statistics underscore the reality that many teachers and principals are not getting adequate opportunities for professional growth. When teachers and principals are not able to speak the language of data, the opportunity for improvement is lost.
Final thoughts—keeping the focus on student learning

Between managing accountability requirements and navigating shifts in standards, there is much for teachers, parents, and administrators to balance in the work of educating the next generation. Student growth data can be an invaluable and efficient tool in keeping the focus on students—what each and every one of them needs to grow academically and step into the lives they envision for themselves. By providing each student with the right instruction at the right time during the school year, growth data can help teachers instill a “personal navigation system” that transforms all students into lifelong learners. Thoughtful use of accurate and fair assessment data leads directly to the equity and growth that are the future of education in America. It also allows us to celebrate and replicate the very real gains that are being made every single day in schools across the nation. That’s a story everyone would be happy to see dominating the headlines.

ENDNOTES


4: Data Quality Campaign, Data for Action, 2012: Focus on People to Change Data Culture
Appendix
APPENDIX A: GROWTH-RELATED RESOURCES

Make Sure Your Student Growth Data Measures Up: 10 Questions to Evaluate Student Growth Assessments [Tool; also included in this paper]

Quality student growth data gives you a clear picture of student learning, proficiency, and college readiness during your transition to more rigorous state standards. Use our list of questions to help you choose the right growth assessment for your district’s needs.

Use these questions to help you:

• clarify why you’re assessing and how students will be affected
• understand what to ask about both assessment and data quality
• focus on how you’ll use the data you receive

[Link: https://www.nwea.org/resources/10-questions-ask-student-growth-assessments]

10 (More) Questions to Ask When Comparing and Evaluating Interim Assessments [Blog post]

[Link: https://www.nwea.org/blog/2014/10-questions-ask-comparing-evaluating-interim-assessments]

Connecting Growth Mindset and Assessment [Blog post]


MAP Makes a Difference Video Series

When educators who use K – 12 Measures of Academic Progress (MAP) online interim assessments speak, they have lots to say about what they get in return! In this five-part interview series, hear why they think MAP gives them what they need to accelerate every student’s progress and growth throughout the year—and how its personalized assessment experience benefits both students and school communities.

[Link: https://www.nwea.org/MAP-difference-videos]

MAP: Making a difference in three Michigan districts [Case study]

Providing a quality educational experience while ensuring each student’s academic growth can be a challenge for any district. For Michigan educators, however, using MAP interim assessment data to personalize instruction and inform professional development has contributed to strong gains in student achievement. Across the state, 37% of school-age children take MAP tests; in Michigan, that translates to more than 600,000 students. Hear what leaders in three diverse districts—Novi Community, Crawford AuSable, and Grand Rapids—have to say about what’s helping drive strong outcomes for the students they serve.

[Link: https://www.nwea.org/resources/MAP-making-a-difference-in-three-michigan-districts]
Strategic use of interim assessment data helps student achievement soar [Case study]

In New Mexico's Rio Rancho school district, students and educators at Puesta del Sol Elementary take inspiration from Spirit the Eagle's ability to soar. The mascot, who presides over approximately 750 students and 100 staff members, embodies the vision and tenaciousness that lifted the suburban Albuquerque school from a disappointing state report card to its current heights of student achievement. The K – 5 school credits much of its turnaround to more effective use of its MAP interim assessment data—as well as increased partnership with NWEA, the makers of MAP.


APPENDIX B

Make Sure Your Student Growth Data Measures Up

10 Questions to Evaluate Student Growth Assessments

CLARITY OF PURPOSE

1. Be clear why you are assessing. Are you measuring growth over time to inform instruction for all students? Communicate progress? For teacher and principal evaluation? For program evaluation?

QUALITY OF DATA AND ASSESSMENT

2. Does the test provide accurate scores for every student, regardless of achievement level, that measure the student’s desired target?

3. Does the way the assessment questions are aligned to the standards make sense both from a content and depth of knowledge perspective?

4. Has the assessment scale been validated and stabilized over time?

5. Will the assessment provide growth norms that allow comparison between similar students? Groups? Schools? Districts?

6. Are the norms updated on a regular basis? Were the assessment items used on the test field tested? Have they been evaluated for bias?

USING THE DATA

7. Have you considered how this assessment will complement your existing testing program?

8. Will you assess at reasonable intervals throughout the academic year in order to gain better insight on instructional impact?

9. Can the assessment data efficiently provide both immediate insight and long-term growth data?

WHAT ABOUT THE STUDENT?

10. How can you use the assessment data to engage students with learning goals, and how can families participate in supporting those learning goals?
Founded by educators nearly 40 years ago, Northwest Evaluation Association (NWEA) is a global not-for-profit educational services organization known for our flagship interim assessment, Measures of Academic Progress (MAP). Educators trust our assessments, professional development offerings, and research to help advance all students along their optimal learning path.

Visit NWEA.org or call 866-654-3246 to find out how NWEA can partner with you to help all kids learn.