



## Acadience Learning Online Initial Goals for Acadience Math



We developed the initial goals in ALO to provide a starting point or first approximation of an appropriate individual student-learning goal. The initial goals will provide a reasonable individual goal for many students; however, an educator may want to adapt or modify the initial goal based on additional information about the student or the educational context.

### Student Learning Goals

First, we will describe the rationale for progress monitoring and setting student-learning goals. Then we will address the desired characteristics of an individual student-learning goal that the initial goals are designed to approximate. Next, we will address initial goals for in-level material followed by initial goals for out-of-level progress monitoring. Finally, we will address some of the issues an educator may want to consider when adapting or modifying the initial goal.

## Purpose of Progress Monitoring and Student-Learning Goals

The purpose of progress monitoring and formative evaluation is to provide ongoing data that can be used by educators to improve student learning and outcomes. Indeed, progress monitoring and formative evaluation provided the third largest impact on student outcomes out of 138 possible influences examined by Hattie (2009). Systematic and ongoing data collection through progress monitoring assessments provides data to inform whether students are making adequate progress toward important math outcomes or whether instructional modifications or additional instructional support are needed to address individual learning needs.

Goals are necessary to determine whether or not a student is making adequate progress. Goals provide expected levels of performance and a frame of reference by which to evaluate the adequacy of a student's progress.

## Characteristics of An Appropriate Individual Student-Learning Goal

Setting an individual student-learning goal is an important aspect of progress monitoring and formative evaluation that is frequently given insufficient attention. Overarching considerations for a student goal are that the goal be: (a) meaningful, (b) ambitious, and (c) attainable.

### **Meaningful**

A goal is **meaningful** if it addresses an important skill and specifies achieving a valued level of the skill by an appropriate time. If a student's skills are discrepant from grade-level expectations in core academic areas, then a meaningful goal would be to either (a) meet grade-level expectations or (b) reduce the student's discrepancy from grade-level expectations. For example, if a student's benchmark status is Well Below Benchmark at the beginning of the year on Acadience Math, a meaningful goal would be to be At or Above Benchmark by the end of the year.

### **Ambitious**

A goal is **ambitious** if it maximizes student progress toward becoming proficient at math. For students whose skills are Below or Well Below Benchmark, it is not enough to make the same progress as students who are typically performing. To close the gap for students with skill deficits we need to set a goal that accelerates their progress. As educators, an ambitious goal shifts us out of our comfort zone, challenges us, strengthens our

commitment and resolve, narrows our focus, and empowers us to avoid distractions. Setting ambitious goals that are specific, well defined, and measurable leads to better outcomes than vague, abstract, or trivial goals. Goals that are challenging have been shown to have strong positive effects on student performance. Michelangelo is rumored to have said, "The greater danger for most of us lies not in setting our aim too high and falling short; but in setting our aim too low, and achieving our mark." Even when we set an ambitious goal and fail to reach it, we often attain a far better outcome than we would in setting and meeting a modest goal. Pathways of Progress provides an interpretive framework to evaluate the ambitiousness of a goal. Using Pathways of Progress, a goal would be considered ambitious if it represents Above Typical or Well Above Typical Progress.

## Attainable

A goal is **attainable** if it is realistic to accomplish. The attainable and ambitious goal characteristics are always in a dynamic tension. The more attainable a goal, the less ambitious; the more ambitious, the less attainable. If we believe a goal is set too high for us to accomplish, we may not invest in it. We may not strive and reach and stretch and go the extra mile to attain it.

Of course, this is a tricky balance. In general, for students whose skills are Below or Well Below Benchmark we recommend a goal that represents Above Typical Progress as a reasonable balance of ambitious and attainable.

## In-Level Initial Goals

We will refer to progress monitoring using material consistent with the student's assigned grade and time of year as in-level progress monitoring. In-level progress monitoring occurs during a semester or year where the Acadience Math subtest is a part of the benchmark assessments at the target time for a progress monitoring goal. For example, progress monitoring for a kindergarten student on Next Number Fluency (NNF) from the beginning to end of kindergarten would be in-level progress monitoring because NNF is a part of the end-of-kindergarten benchmark assessment.

Similarly, monitoring the progress of a first-grade student with Level 1 Computation from the beginning to the end of first grade would be in-level progress monitoring, as would monitoring the progress of a third-grade student in Level 3 Concepts & Applications (C & A) material. In ALO, we specify an initial goal for in-level progress monitoring based on the individual student's benchmark status and their desired Pathway of Progress, subject to maximum and minimum values as described next.

## Pathways of Progress and Benchmarks

In-level progress monitoring is important for early intervention and prevention. Pathways of Progress as well as the benchmarks and cut points for risk combine to provide a framework for setting goals and interpreting progress for in-level progress monitoring. For students whose beginning-of-year skills are Below Benchmark, the odds of achieving subsequent benchmarks and meeting grade-level expectations are generally 40% to 60%.

For students whose skills are Well Below Benchmark, the odds of achieving subsequent benchmarks are generally 10% to 20%. For these students, a meaningful goal entails accelerating their progress to achieve grade-level benchmarks. Thus, for students whose beginning-of-year benchmark status is Below Benchmark or Well Below Benchmark, we set a meaningful, ambitious, and attainable initial goal of (a) meeting the end-of-year benchmark and/or (b) making Above Typical Progress.

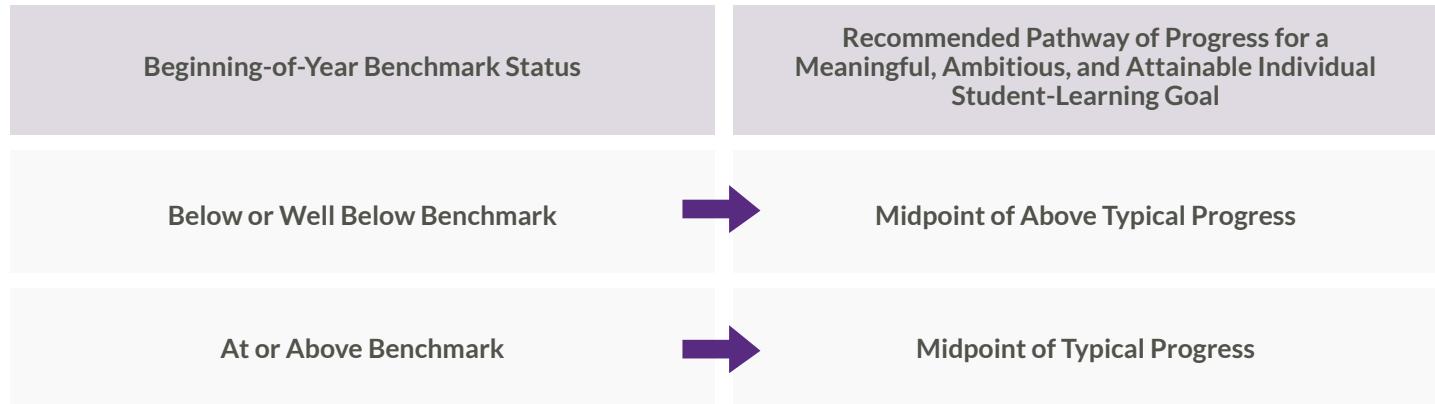
For students whose beginning-of-year skills are At or Above Benchmark, the odds are generally 80% to 90% of achieving subsequent benchmarks and meeting grade-level expectations by making Typical Progress with effective core math instruction. For these students, we set the initial goal of (a) remaining At or Above Benchmark at the end of the year and/or (b) making Typical Progress.

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Initial goals are specified in a two-step process. First, the desired Pathway of Progress is determined. Second, the initial goal is constrained by maximum values based upon the student's grade level. The first step in specifying an initial goal is summarized in *Figure 1*.

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**Figure 1.** Initial Goal Pathway of Progress by Beginning-Of-Year Benchmark Status



Maximum values for initial goals are also specified. For students whose beginning-of-year skills are At or Above Benchmark, the initial goal was constrained by the lowest value of the Above Benchmark range. Thus, a student who met the beginning-of-year benchmark might have an initial goal that would be Above Benchmark at the end of the year. For students who have scores that are Below or Well Below Benchmark at the beginning of the year, the initial goal was constrained by the midpoint of the At Benchmark range.

**In the following examples we will illustrate the initial goals for in-level progress monitoring and how an educator might choose to modify those initial goals for individual students.**

# In-Level Goal Setting Examples



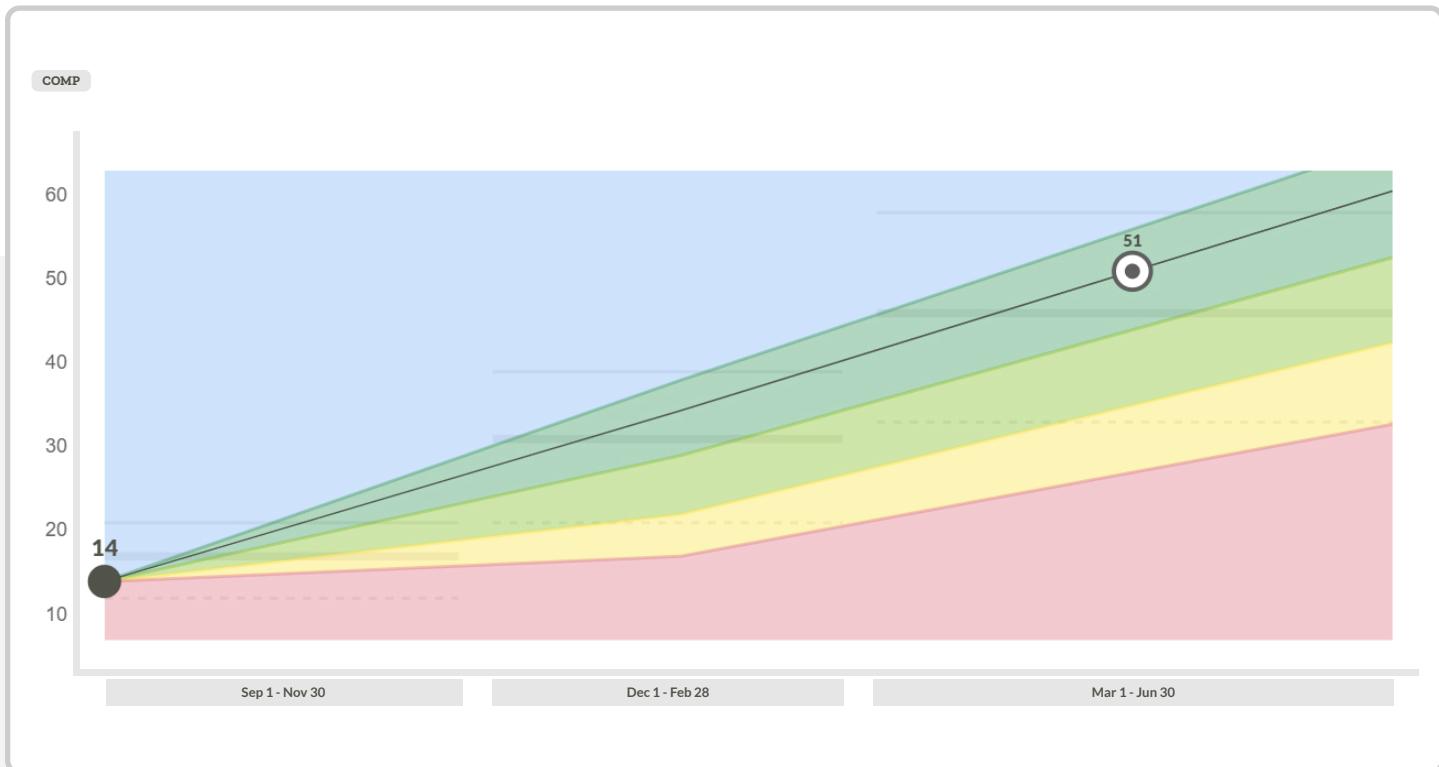
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## In-Level Goal Setting: Miriam

Miriam is a fourth-grade student whose scores are Below Benchmark on the Math Composite Score (MCS) and Computation. In ALO, the initial, in-level goal for Miriam is 51 correct digits in Level 4 Computation material, the middle of the Above Typical Progress pathway (see *Figure 2*). A goal of 51 correct digits by the end of the year is an initial approximation of a meaningful, ambitious, and attainable goal for Miriam.

If Miriam accomplishes this goal, her skills would be At or Above Benchmark at the end of the year and she would have made Above Typical Progress. While an initial goal may be adapted or modified based on professional judgment and additional information, in this case, the instructional team decides that this is a meaningful, ambitious, and attainable goal for Miriam and decides not to modify it.

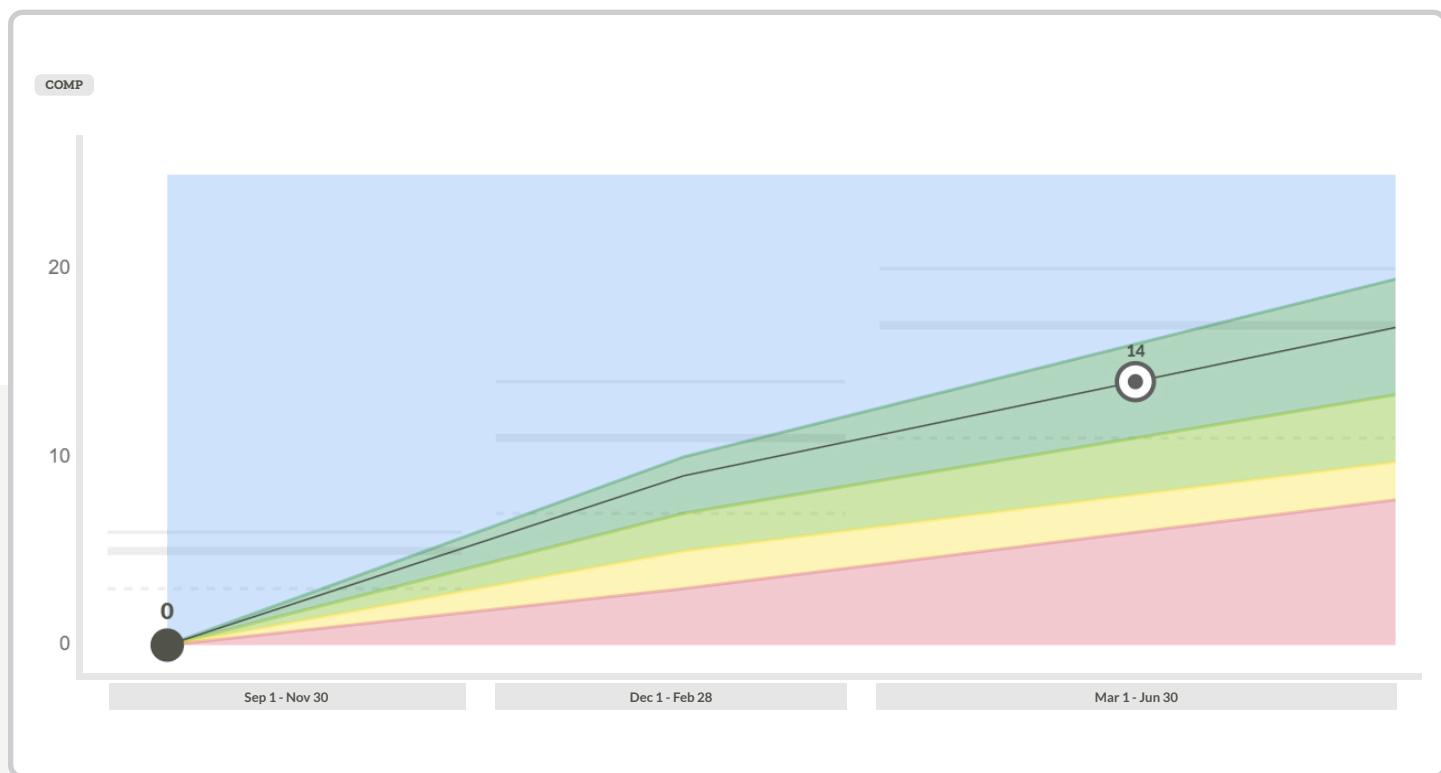
**Figure 2.** Miriam In-Level Goal for Acadience Math Computation



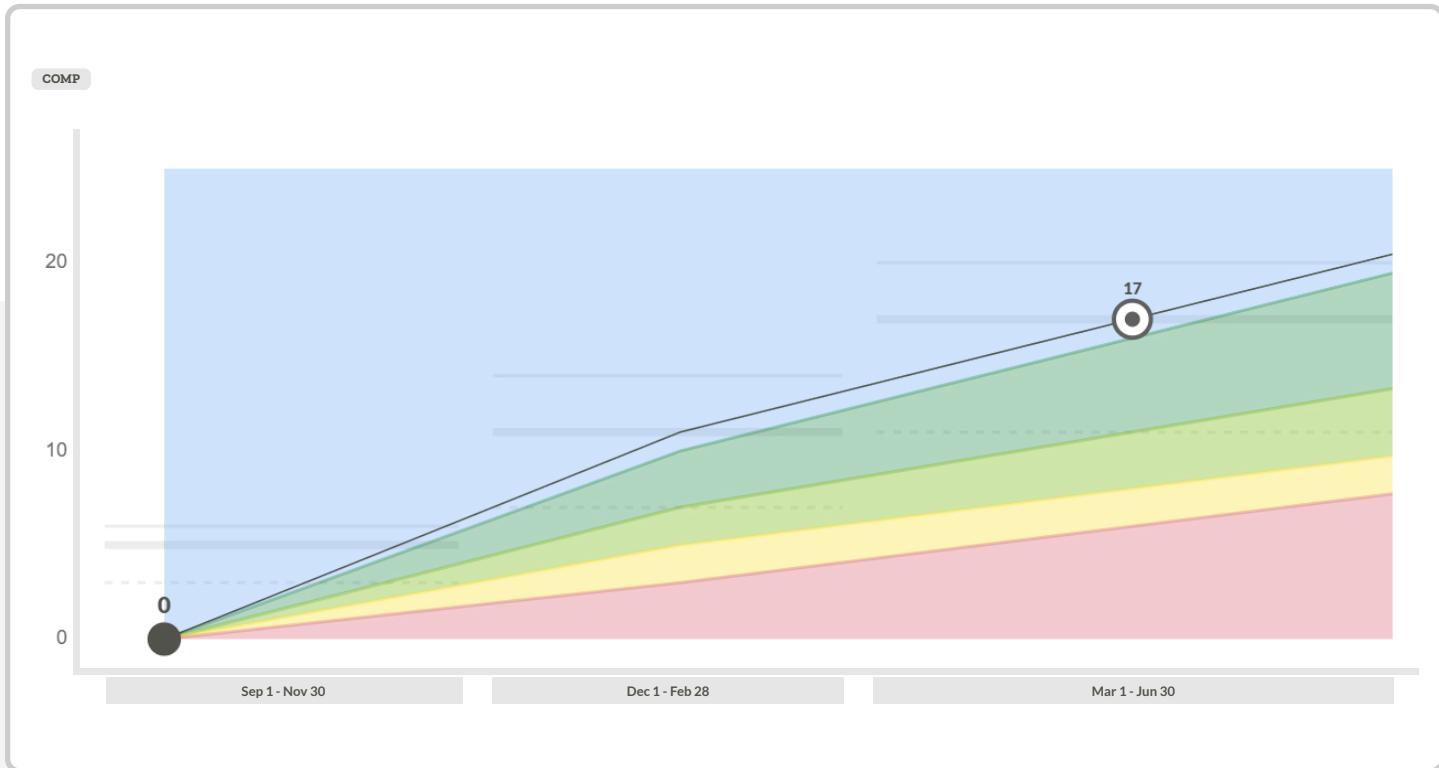
Ella is a first-grade student whose MCS and Computation scores are Well Below Benchmark at the beginning of the year. In ALO, the initial, in-level goal for Ella is 14 correct digits in Level 1 Computation material. This goal would be in the middle of Above Typical Progress; however, that initial goal would result in skills that would still be Below Benchmark at the end of the year (see *Figure 3*). Based on Ella's learning history and the intervention in place, the team decides to modify the initial goal to be more ambitious. The goal is adjusted to be 17 correct digits in Level 1 Computation which would represent Well Above Typical Progress.

If Ella meets the adjusted goal, she would reach the end-of-year Computation benchmark (see *Figure 4*). The team determines that this goal would be meaningful, ambitious, and attainable for Ella.

**Figure 3.** Ella's Initial In-Level Goal for Acadience Math Computation



**Figure 4.** Ella's Adjusted In-Level Goal for Acadience Math Computation



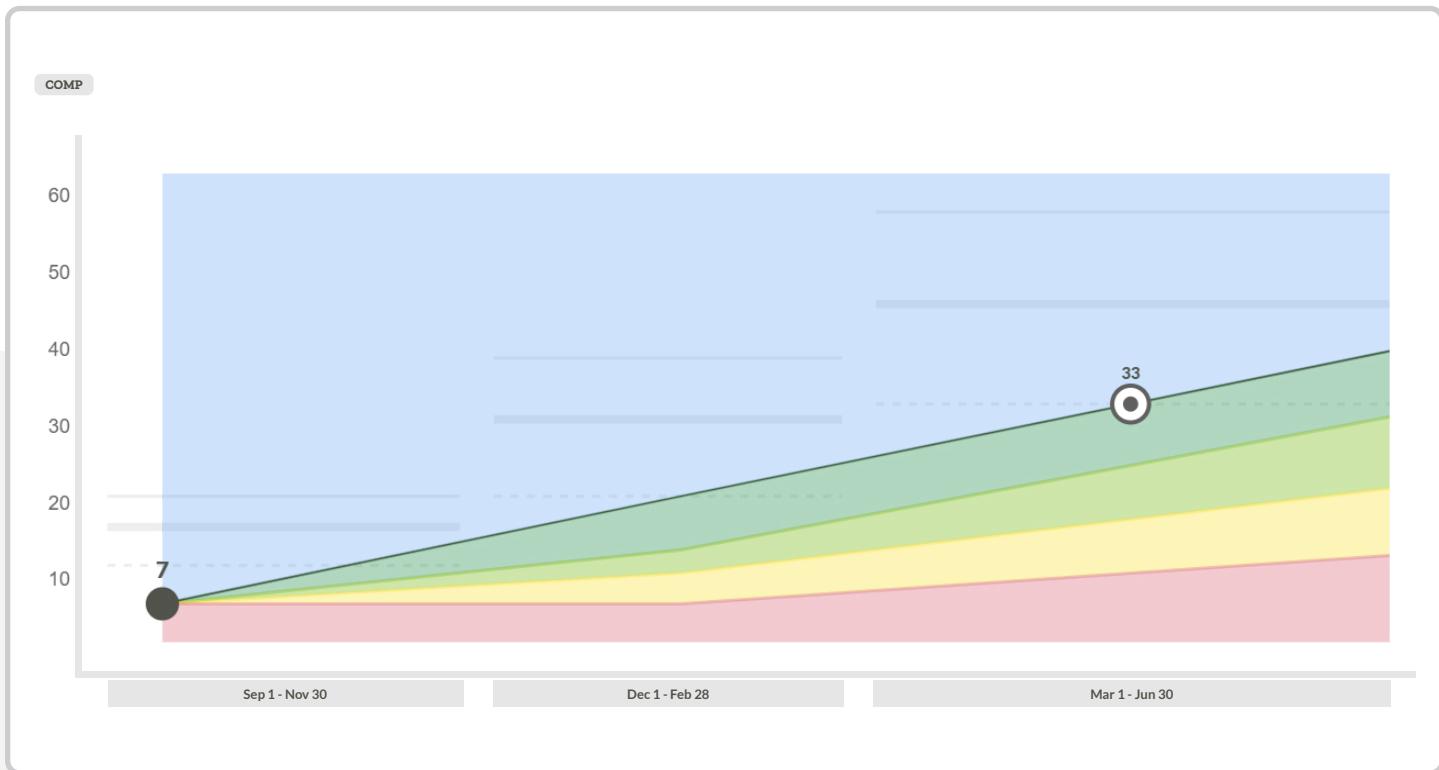
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### In-Level Goal Setting: Katarina

Katarina is a fourth-grade student whose skills are Well Below Benchmark. In ALO, the initial goal of 25 correct digits in fourth-grade Computation material would be in the middle of Above Typical Progress (see Figure 5). That initial goal would result in skills that were still Well Below Benchmark at the end of the year for Katarina. However, based on Katarina's learning history and additional assessment information, the team decides that adjusting the goal to 46 correct digits to meet the end-of-year benchmark would be extremely ambitious and unlikely to be realistically attainable for Katarina.

Pathways of Progress informed this decision because a goal of 46 correct digits would be solidly in the Well Above Typical Progress pathway for Katarina. The team instead decided to plan to support Katarina to meet grade-level expectations during fifth grade (that is, taking 2 years to reach grade-level benchmarks). In the current year, the plan is to reduce the discrepancy between Katarina's skills and grade-level expectations by increasing her skills from Well Below Benchmark to Below Benchmark. In the subsequent year the plan is to continue to increase her skills from Below Benchmark to At Benchmark. The team determines that 33 correct digits on Level 4 Computation would be a meaningful, ambitious, and attainable goal for Katarina consistent with their plan.

**Figure 5.** Katarina's Adjusted In-Level Goal for Acadience Math Computation



## Initial Goals for Out-of-Level Progress Monitoring

While in-level progress monitoring is important for early intervention and prevention, out-of-level progress monitoring is important for the remediation of severe skill deficits and gaps in the student's learning. Out-of-level progress monitoring occurs during a semester or year where the progress monitoring measure is not a part of the benchmark assessments at the target time specified for the goal. For example, progress monitoring for a first-grade student on NNF from the beginning to middle of first grade would be out-of-level progress monitoring because NNF is not a part of the middle-of-first-grade benchmark assessment.

Similarly, monitoring the progress of a fifth-grade student in Level 2 Computation would be out-of-level progress monitoring because Level 2 Computation is not a part of the benchmark assessment at the end of fifth grade. When setting initial goals for in-level progress monitoring, Pathways of Progress and grade-level benchmarks inform goals that are meaningful, ambitious, and attainable. However, when setting initial goals for out-of-level progress monitoring in math, fewer resources are available and professional judgment and theory play a larger role. In setting a goal and monitoring progress in out-of-level material, a number of procedures have been advocated. While the different procedures vary in complexity, most yield similar results.

We recommend a relatively straight-forward procedure of using the benchmark that corresponds to the out-of-level material as a goal, but accelerating progress or making the goal more ambitious by cutting the time to attain that benchmark in half.

The first step in out-of-level progress monitoring is to select the optimal level of material for frequent assessment using a process of surveying back in easier levels of the assessment material to identify the optimal level for frequent progress monitoring. The optimal level for frequent progress monitoring should be the highest level where the student is at or above the corresponding grade-level benchmark on earlier skills or levels of the material, but has not met the corresponding grade level benchmark on the optimal level of the material.

For example, the process of identifying the optimal level for frequent progress monitoring for a fifth-grade student with very low skills in Computation is illustrated in *Figure 6*. In this example, Level 5 Computation would be too difficult to be sensitive to the effects of instruction and would not be appropriate for frequent progress monitoring and formative evaluation to evaluate the effects of intervention. However, it is important to continue benchmark assessment with fifth-grade-level material to ensure that the student is making progress with respect to grade-level expectations. The student continues to be well below the corresponding grade-level benchmarks for Level 4 and Level 3, and below the second-grade benchmark for Level 2. However, the student is at or above the first-grade benchmark on Level 1 Computation.

**Figure 6.** Identifying the Optimal Level for Frequent Progress Monitoring for a Fifth-Grade Student with Very Low Acadience Math Computation Skills

Assessment Level and Material	Score	Benchmark Status	Note
Level 5 Computation	5	Well Below Grade 5 Benchmark	Benchmark assessment in grade-level material. Likely too difficult for frequent progress monitoring.
Level 4 Computation	6	Well Below Grade 4 Benchmark	Likely too difficult for frequent progress monitoring.
Level 3 Computation	8	Well Below Grade 3 Benchmark	Likely too difficult for frequent progress monitoring.
Level 2 Computation	10	Below Grade 2 Benchmark	Optimal level for frequent progress Monitoring. Instructional level.
Level 1 Computation	22	Meets Grade 1 Benchmark	Mastery level.

The highest level where the student has met the grade-level benchmark is generally regarded as the mastery level. The lowest level where the student has not met the grade-level benchmark is generally regarded as the instructional level. The optimal level for frequent progress monitoring is generally the same as the instructional level. However, when monitoring progress in out-of-level materials, the overarching goal is to use the highest level of material in which change can be shown in the skills targeted for instruction. In this example, Level 2 Computation was judged to be the optimal level for frequent progress monitoring for the fifth-grade student. The same procedure would be used to select the optimal level for frequent progress monitoring on C & A. If necessary, we could continue testing back to make sure that the student has mastered the essential early numeracy skills.

Once the optimal material for out-of-level progress monitoring is selected, we will use the end-of-year benchmarks that correspond to the out-of-level materials and accelerate the time to achieve them. For example, if we are monitoring the progress of a fifth-grade student using Level 2 material, the second-grade benchmarks would correspond to the out-of-level progress monitoring material. Because an ambitious and meaningful goal for the student will reduce the discrepancy between their skills and expected skills, we will accelerate the out-of-level benchmarks by reducing the time to achieve the benchmark by one half.

**The steps for using accelerated, out-of-level benchmarks for setting an initial goal for out-of-level progress monitoring are:**

- Step 1** Identify the optimal grade level and assessment material for out-of-level progress monitoring.
- Step 2** Specify the end-of-year, out-of-level benchmark corresponding to the out-of-level material.
- Step 3** Accelerate the goal by cutting the time to attain the out-of-level benchmark in half.

The first step is to identify the optimal level to use for out-of-level progress monitoring. The optimal level for progress monitoring should simultaneously illustrate (a) the student's current level of skills, (b) an instructional goal that the student needs to attain, and (c) progress toward the goal.

To illustrate progress, the material must be at a level in which changes in student skills will be apparent. Thus, we would not select material at the student's mastery level, nor would we select material that is too difficult because progress will not be apparent and the student and teacher or interventionist may become discouraged.

# Out-of-Level Goal Setting Examples



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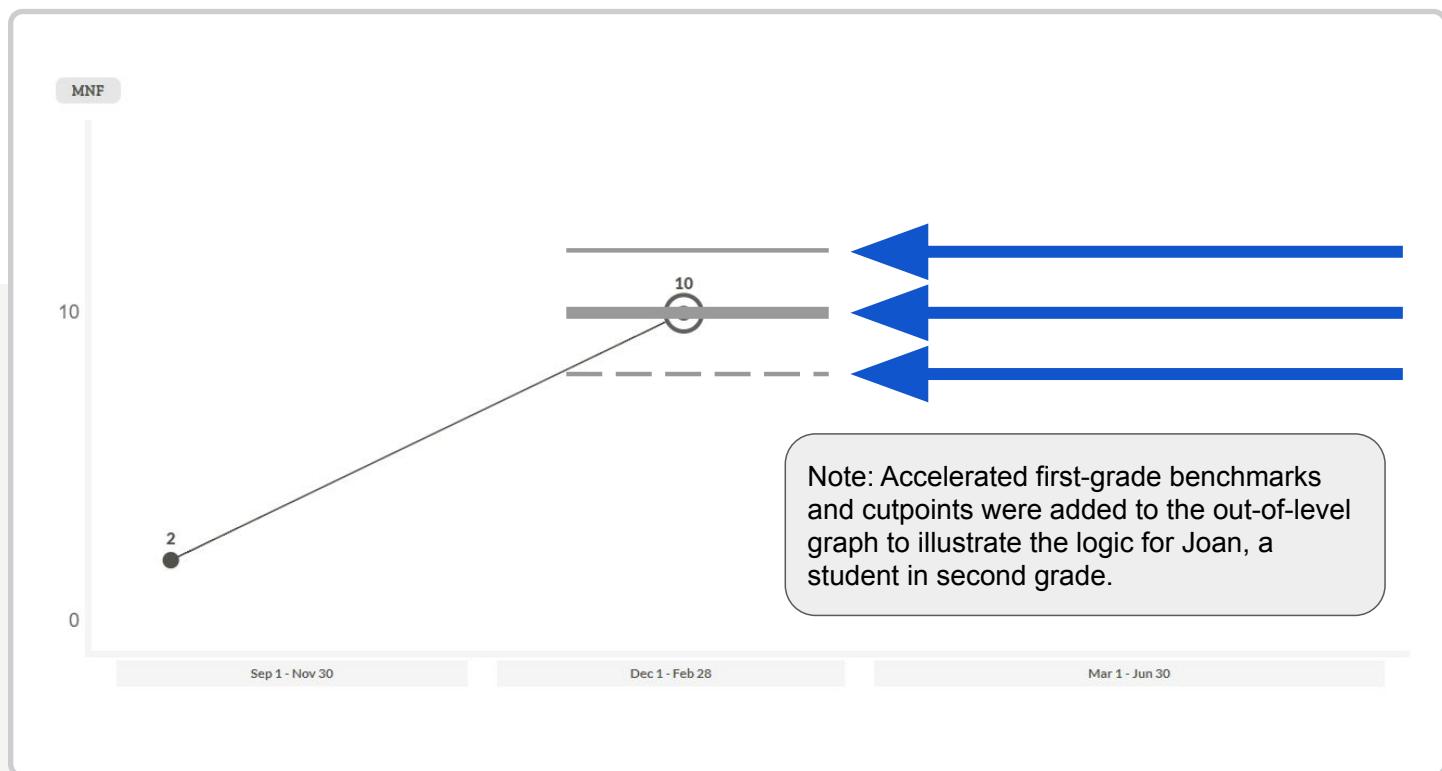
## Out-of-Level Goal Setting: Joan

Joan is a second-grade student who has very low skills in math and who scored Well Below Benchmark on the MCS and on Computation. In fact, her Computation score was 2, and her educational team determined that her performance was too low for frequent progress monitoring using in-level Computation material, although she will continue to be assessed with Computation for her benchmark assessment.

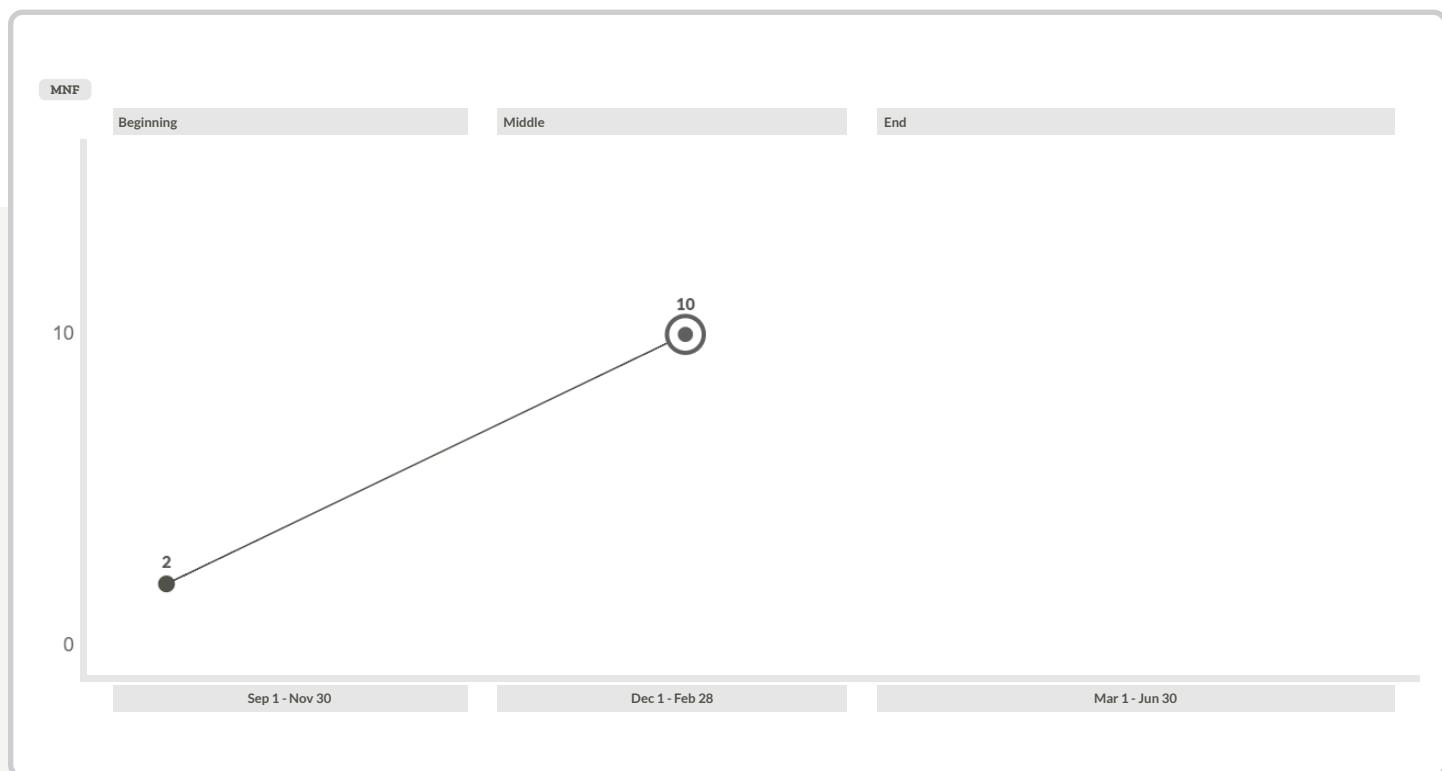
In a process of testing back in out-of-level material, the team determined that Joan met the kindergarten benchmarks on the early numeracy skills measured by Number Identification Fluency (NIF), Next Number Fluency (NNF), and Beginning Quantity Discrimination (BQD). However, she was in the Below Benchmark range (using the benchmark for the beginning of first grade) on the first-grade early numeracy skills of strategic counting and number patterns and sequences with a Missing Number Fluency (MNF) score of 2. The team decided to set a goal and monitor her progress in out-of-level material, specifically on MNF. Essentially, we desire for Joan to acquire the essential first-grade early numeracy skills that she is missing as quickly as possible so that she can make adequate progress in second-grade material.

For Joan, we will set a progress monitoring goal of meeting the first-grade, end-of-year MNF benchmark by the middle of her second-grade year. The initial progress monitoring goal and aimline for Joan would be, "When presented with an Acadience Missing Number Fluency form, Joan will use strategic counting and number sequencing skills to identify at least 10 missing numbers in number sequences by the middle of the year." *Figure 7* illustrates the procedure for accelerating the benchmarks for an out-of-level initial goal for Joan. *Figure 8* illustrates the corresponding progress monitoring graph using ALO.

**Figure 7.** Annotated Out-of-Level Goal and Progress Monitoring Graph Illustrating Accelerated Benchmarks for Missing Number Fluency (MNF)



**Figure 8.** Out-of-Level, Accelerated Initial Goal and Progress Monitoring for Missing Number Fluency (MNF) Using ALO



## Considerations for Adapting or Modifying the Initial Goal

The initial goals provide a starting point for a desired individual student-learning goal. The initial goals are designed to be meaningful, ambitious, and attainable based on the student's benchmark status and the desired Pathway of Progress for that student to attain subsequent math benchmarks. As such, the initial goals will be appropriate for most students. It is always important to use all available information when planning instruction for a student, and this includes setting goals. There are students for whom a teacher or educational team may choose to modify a goal for an individual student.

When making educational decisions for students, including modifying the initial goal, we recommend beginning with the MCS. The MCS is the best predictor of future math performance and incorporates the broadest sample of behavior including, as appropriate, early numeracy, computation, and concepts and applications. Sometimes adjusting the goal for one or more of the components that comprise the composite will result in an MCS that is At or Above Benchmark and that represents the desired amount of progress for the student (for example, Above Typical Progress for students who are Below or Well Below Benchmark). After the MCS, benchmarks for each of the components also provide an important consideration for goal setting. If modifying or adjusting a goal by a few points could meet a benchmark on a component measure, it is well worth considering.

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In addition to meeting the grade and time-of-year benchmarks as an overarching goal, it is also desirable to maintain a relative balance in the component skills that comprise the composite. For example, it would not be desirable to meet the Computation benchmark but have very low C & A scores. Similarly, it would not be desirable to specify a very high goal on NIF, but a comparatively low goal on BQD or NNF.

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Finally, it is important to consider the educational and instructional context, that is, the Multi-Tiered System of Support that is in place. While Pathways of Progress provide a normative framework for understanding Typical Progress and Above Typical Progress across a broad range of schools and classrooms, the pathways do not necessarily provide an indication of what can be achieved with powerful and effective instruction, especially in the early elementary grades. Acadience Math data at the systems level (e.g., grade level, school, district) can provide valuable information about the effectiveness of the system of

support that is in place. For example, screening data that are collected periodically for all students can be summarized at various levels (e.g., instructional group, classroom, grade level) to determine the proportion of students making adequate progress. The Summary of Effectiveness data view in ALO provides one such framework to assess the general, overall effectiveness of the system of support. If the core instruction or intervention supports being provided are not working for many or most students, some consideration should be given to strengthening the system of support.

In addition to adopting new curricula or programs, professional learning and inservice training may be needed. Situations where an educator is concerned that Typical or Above Typical Progress may not be attainable are an indication that support is needed for the system of instruction. Further professional learning or coaching may assist the interventionist in understanding the essential early numeracy and math skills and how best to teach, model, practice, and provide corrective feedback.

It may also be important to emphasize those aspects of the curriculum or intervention which highlight the essential early numeracy and math skills. If the curriculum or intervention does not provide adequate support for teaching those skills, selecting a research-based intervention or supplement may be needed. If sufficient resources or time are not available to ensure timely mastery of the essential early numeracy and math skills, then problem-solving at the systems level to address those issues becomes the priority.

## Summary

*Setting meaningful, ambitious, and attainable goals is a critical part of progress monitoring and formative evaluation. Hattie (2009) has reported that progress monitoring and formative evaluation provided the third largest impact on student outcomes of 138 possible influences that he examined. For students who are Below Benchmark or Well Below Benchmark in their skills, establishing meaningful, ambitious, and attainable goals that will accelerate their progress is a critical part of progress monitoring and formative evaluation.*



For additional information on using the ALO goal-setting utility or Pathways of Progress, please see our website at [www.acadiencelearning.org/resources/pathways-of-progress](http://www.acadiencelearning.org/resources/pathways-of-progress) or contact us at [info@acadiencelearning.org](mailto:info@acadiencelearning.org).

## Reference

Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.