

# UNIVERSAL SCREENERS for NUMBER SENSE



Overview, Instructions,  
And Bibliography

*Revised June 2020*

*Universal Screeners for Number Sense*  
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## *Forward to the 2020 Revisions of the Universal Screeners for Mathematics*

**David Woodward**  
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This is the first revision major of the Universal Screeners for Mathematics in seven years. Much was learned in the seven years in between, and I am happy that those learnings are finally being put to action here. The original Screeners are still in use in Boulder Valley Schools and in many other districts and their value has not diminished. However, a number of changes were warranted in order to incorporate new learnings and increase that value. You will find detailed notes about each of the changes below. Some questions were cut, others shortened. Some were changed significantly (see the fluency tasks for 5<sup>th</sup> grade) and a couple of questions were added. Upon stepping away from my position in BVSD and fully into the position of President of Forefront Education, a company I founded 11 years ago, I am delighted to release these revisions to the math education community, and look forward to hearing reactions from the field. No doubt you will find further areas for improvement.

The Screeners are now named Universal Number Sense Screeners, which better aligns with their design and purpose. This also felt appropriate given that these revisions were made after completing my tenure of service with the Boulder Valley School District. As the leader and caretaker of the Screener project in BVSD and the founder and president of Forefront Education, I decided to undertake a full revision of the Screeners and to make them publicly available on the Forefront site. With my resignation from BVSD it would no longer have been possible to maintain the BVSD Screeners as they were.

At this time, revisions of the Fall Screeners are being released. Revisions of the Midyear and Spring Screeners will follow later this fall.

### **Rationale for the Universal Number Sense Screeners:**

The purpose for these assessments is to provide a series of interview-based screening assessments to:

- Help teachers to understand the skills and knowledge that students bring with them
- Help teachers better understand how to best support all students in accessing grade level content and accelerate learning
- Inform RtI or MTSS Tiers 1 and 2. Are there skills and concepts will need to be retaught to the whole class? Which prerequisite skills and concepts will need to be addressed quickly in order to accelerate learning?
- Help teachers understand which students might need additional supports
- Help identify students to whom the teacher might want to administer a more diagnostic assessment, for which we recommend the Add+Vantage Math assessments from the US Math Recovery Council

Additionally, with the proper tools for collecting and visualizing the data, these Screeners are designed to help schools and districts:

- Monitor the effectiveness of instructional programs over time
- Inform professional development, PLCs, and other collaborative action
- Communicate current understandings of number sense to teachers and others

- Inform district FTE decisions. Where are there concentrations of students who are at risk of struggling? How can we react proactively and provide early interventions?

These screening interviews reveal mathematical thinking in ways that traditional paper and pencil or online assessments cannot. Although it is impossible to be comprehensive in an assessment like this, these Screeners provide an opportunity to understand student thinking much more deeply than other assessments.

### Development History

The Math Screener Project has its roots in work that the Boulder Valley School District's (BVSD) Math Department did starting in 2007. At that time much of our thinking was influenced by the work of the US Math Recovery Council, as it still is. After a period of about four years when annual revisions were made each fall, it was determined in 2013 that no more revisions would be made for some years. The revisions published here are the first since that time. I hope that you will find significant improvements in many ways.

Over the past seven years the Screeners have attracted a significant amount of attention in the United States and abroad. Ample feedback has been shared over that time. For those of you who have provided feedback, I hope that you will appreciate the improvements you find here. The data from the Global Cohort has also helped to inform this work both in helping to focus on student assets over deficit assessment, and to calibrate the difficulty of the assessments so that they are more consistent year over year and help to better inform instructional responses.

It is my hope that these assessments will continue to support the math education community for many years to come. As always, I appreciate any questions, feedback, comments or otherwise. Please reach out to me at [david@forefront.education](mailto:david@forefront.education).

### Design of the Screeners

These assessments were designed along these principles:

- Teachers teach best when they have a deep understanding of individual students
- Assessment is much more than numerical data. It is the interpretation of all observations about a student and their growth along learning and developmental trajectories.
- An assessment becomes formative once it has influenced instructional decision-making.
- Assessment is fundamentally a form of communication both from the student to the teacher and from the teacher to the student.
- We value student thinking and mental math strategies.

The questions in these assessments were developed to align to:

- Research related to reliable predictors of general outcome measures for mathematics (see full bibliography below)
- The Add+Vantage Math Recovery assessments and related research ([www.mathrecovery.org](http://www.mathrecovery.org))
- The Common Core State Standards for Mathematics ([www.corestandards.org](http://www.corestandards.org))

Add+Vantage Math Recovery (AVMR) ([www.mathrecovery.org](http://www.mathrecovery.org)) includes assessments, instructional activities and professional development. The Fall Screeners are designed to direct trained teachers to specific AVMR assessments to be used as a further diagnostic tool for students who show signs of struggle when taking the Screener. The results of these diagnostics, when coupled with the Screener results, can be used to set goals for targeted interventions at any tier of the RtI/MTSS triangle.

The Screeners are also carefully designed to be in alignment with general research related to predictors of general outcomes in mathematics. Highly predictive number sense proficiencies include verbal counting, strategic counting, magnitude comparisons, fact fluency, and problem solving.

### Unique Design

The Universal Number Sense Fall Screeners are one-on-one interview assessments which give teachers a structure for collecting consistent observational data across classrooms and schools. The midyear and end-of-year assessments have both interview and paper and pencil components to provide a more comprehensive picture of number sense development.

The combination of interview with paper and pencil provides unique insights into student understanding that has proven very valuable to teachers for informing their tier 1 instructional decisions, tier 2 grouping and interventions, and tier 3 perspectives on urgency. The screeners serve as indicators of both struggle and adequate progress.

### Depth of Knowledge

Some of the tasks on the Screeners very clearly have a Depth of Knowledge of level 1. The counting tasks and number identification tasks are good examples of this. However, the depth of knowledge of other tasks is not as straight forward since it depends on the questioning the teacher does related to strategy usage. Asking for instance, “Can you show me how you solved that?” elicits a DOK of 2 or 3, whereas asking a student to prove their answer by asking, “Why does that work?” can elicit a DOK of 4. Teachers in general should ask probing questions as necessary to inform their own instruction without allowing themselves to become bogged down.

### Data Collection



Forefront®, created by Forefront® Education™, is preconfigured to support schools and district in maximizing the usefulness of the data that comes from the Screener and other assessments. Forefront allows for the aggregation of data across multiple districts, and it is through that portal that the Global Cohort and national norms are established.

### Free for the Math Ed Community

The Universal Number Sense Screeners are freely available to everyone in the education community, and can be downloaded from the website: [forefront.education](http://forefront.education) and are published under the Creative Commons license (<https://creativecommons.org/licenses/by-sa/4.0/>)

### Assessment Windows

Although there are no strict guidelines for when to administer these assessments, generally the Fall Screeners should be finished within the first 4-6 weeks of school. The Midyear Screeners

are designed to be given after the winter break, and the Spring Screeners should be administered in the last 4 -6 weeks of school. Some teachers have found that administering the Spring Screener as early as the first weeks of April has been informative for guiding end of the year instruction. For data entry in these cases enter the final, end-of-year results.

## *Notes on the 2020 Revisions*

The format of the entire series has changed in order to encourage more note-taking and careful observation. Detailed descriptions have been added in order to help use the tasks formatively and increase scoring consistency. Each Fall Screener now contains the following elements:

- **Note Catcher:** Each of the assessments now has a note catcher which includes fewer details about the script, condensed scoring guides, and more space for notes.
- **Quick Script:** provides teachers familiar with the assessments enough guidance to administer the assessment efficiently.
- **Detailed Guide:** For each of the assessments in the series a detailed guide has been written to help clarify the purpose, administration, and scoring of each of the tasks.
- **Cards:** For the administration of the tasks.

In general counting tasks have been shortened wherever possible. The counting tasks remain central to the entire series, however they were also some of the most time consuming tasks of the series. Teachers are encouraged to allow students to count longer as time allows when they feel that it continues to provide valuable information.

A number of tasks include visual supports and contexts that were not there before. This is a result of experiences with students over the past seven years. When students have been unable to provide responses to bare number problems, contexts and visual supports sometimes provide insights into student thinking that otherwise goes unnoticed. These changes primarily reflect learning that has come from working with students, from the US Math Recovery Council, and from Realistic Math Education and the Freudenthal Institute.

Place value tasks were added to both 1<sup>st</sup> and 2<sup>nd</sup> grades. Given that place value understanding is critical, and especially in 2<sup>nd</sup> grade, it felt important to add these tasks to help teachers hear the understanding of tens and ones that students bring with them.

Using the results that have been collected in the Forefront Global Cohort, some questions have been calibrated in order to get a better full-spectrum understanding of student thinking. These changes, most of which meant making tasks a bit easier, should also help to improve the efficiency of the assessment.

### **Kindergarten:**

**Task #2** from the 2013 Screeners has been removed. This was a numeral recognition task that simply asked students to identify which was a number from a series of symbols. Although some teachers found this task to be helpful in identifying students who had very little exposure to numerals, it did little to enhance the information that was already being gathered in task 3, which is to read the numerals to 10.

**Task #7** Is a new task to ask students to show five fingers and three fingers. Finger knowledge has been repeatedly shown to be a strong indicator of number sense. The ability to use fingers to represent numbers is also critical for the work of kindergarten where every student should become adept with using fingers to not only show numbers, but also to solve addition and subtraction tasks.

### First Grade:

**Task #4** which previously suggested that teachers present 8 counters of one color and 7 of another has been changed to just have the teacher give the student 15 counters to count. This helps the task to focus on one-to-one correspondence and the ability to count a set of objects.

**Task #10** was added to help teachers understand students' place value understanding.

### Second Grade:

Aggregate scores of the 2nd Grade Fall Screener were consistently higher than any of the other Screeners year after year and across the many districts using the Screeners. Meanwhile, there were no questions relating to place value, which is a critical concept of 2nd grade.

**Tasks #9 and #10** were added to provide a context for a student to solve  $10 + 6$  and then  $16 + 10$ . This will help teachers to better understand the readiness of the students for the place value work of the grade. The other questions on this Screener have not changed, in order to maintain consistency so that the recently published research which used these Screeners will remain valid.

The Second Grade Fall Screener has fewer changes than other grade level in part because of an interest in maintaining consistency with the assessment that was used for this recently published research which demonstrated that this Screener is highly predictive of overall math performance in 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grades. (Wilkins, J., Woodward, D., Norton, A. 2020)

### Third Grade:

**Tasks #1 & #2:** The counting tasks were shortened substantially to make the assessment take significantly less time, while still providing critical information. These tasks also now include a card to help support the student in understanding where to start the count.

**Task #7** asks the student to solve  $50 - 24$ . This has proven to be a difficult task for students everywhere. While the numbers for this task will not change, the delivery will. A visual model has been added to support the thinking of students who are incorrect in their first attempt. This change will help teachers better understand how to best serve students who might be unable to solve a task when presented symbolically, but who, when provided with a visual support, are able to solve the problem.

### Fourth Grade:

**Questions #1 and #2:** As with third grade, the counts have been shortened considerably to streamline the assessment. These tasks also now include a card to help support the student in understanding where to start the count.

**Question #3:** a fraction has been added to the numeral identification task.

**Question #6** was a question about 132 pencils that need to be put into boxes with 10 pencils each. Many teachers questioned whether this task was beyond the expectations for fall of 4th

grade. Results over the years in the Forefront Global Cohort showed that about 40% of students were unable to solve this task. Therefore, the number of pencils has been changed to 82. This calibration will help to better inform starting points for instruction.

**Question #8:** 400 - 198 has been a question that has been the topic of much discussion. Many teachers love this task and feel that it reveals a lot about student thinking, however, historically fewer than 50% of students in the Forefront Global Cohort score 3 points on this task. In order to calibrate this task, so that it will reveal a broader spectrum of understanding a follow-up prompt, 400 - 102, has been added for students who are unsuccessful with the first task.

**Question #9:** The number line task has consistently returned disappointing results. Although the task is clearly in the realm of what students are expected to learn in 3rd grade according to the Common Core and most state standards, in practice students have demonstrated considerable difficulty with this task and fewer than 20% of students in the Global Cohort have demonstrated success over the years. Understanding how fractions are represented on number lines is critical. In order to better understand student thinking on this task, the task has been rewritten to place it into the context of a race. This will make the task more accessible and help students to better demonstrate their understanding of fractions.

### Fifth Grade

**Task #1:** Count was shortened, and a card to tell the student where to start the count was added.

**Task #2:** Fractions have been added to the numeral ID task.

**Task #3:** The prior version of this task was designed to ask for a memorized fact. It has been adjusted to help teachers understand student thinking related to multiplication. This task was changed from  $8 \times 7$  to  $6 \times 4$ , and a visual model is now provided to help teachers understand students' methods for solving the task.

**Task #4:** Similar to the multiplication task, the division task has been redesigned to better understand student thinking related to division. This task now is supplemented with an array to help illustrate student thinking.

**Task #7:** Previously this task asked, "How many tens in 132?" This caused significant confusion. To get at the idea of place value that the original question had intended to target this task has been changed to match the 4th grade pencil problem. The context will provide a better access point for student thinking. Meanwhile the number has been increased to 213 to help teachers better understand how students are dealing with the relationship between tens and hundreds.

**Task #8:** This money task also has been calibrated to help teachers better target students who might need additional support. The cost of the object to be purchased was changed from \$16.97 to \$12.25. This is also intended to improve the efficiency of the assessment.

## *Instructions for Administration*

These are interview-based screening assessments that happen one-on-one with students.

- Read the assessment through and discuss with a colleague to ensure that any questions that might arise can get cleared up.
- Prepare your space. Where will you do these assessments?
- Prepare all the materials that you need (materials lists are below)
- Practice it once with a student or colleague so that you are fully ready.
- Consider whether you will video tape or not. Some teachers video tape most of all of the assessments for personal use, sharing with parents, or for PLC or other collaborative work.
- Schedule your time. Will you do one per day? Two per day? Or perhaps there is a better plan that fits well with your situation. No matter what you choose consider how and when you will complete the assessments.
- As you give the assessments take notes. We all think we are going to remember, and yet after doing a few assessments it is often difficult to remember. These assessments are designed to collect qualitative evidence as much as quantitative evidence. In fact that qualitative evidence is more useful as formative information for instruction.
- Be curious, but keep a good pace. These interview assessments can lead to a lot of questions about how students solve problems. This is in fact the intention, and when teachers express a genuine curiosity about how students think that communicates to the student that you care. However, it is easy to let the questioning go on so long that you can get bogged down, and behind schedule. Sometimes it is best to make a note and ask more questions some other time.

Before administering the assessments read the assessments through carefully. The new detailed descriptions are designed to answer many of the questions that have come up over the years. It is best to do a dry run with the materials and either a “sample” student or a teaching partner.

### Preparation

In addition to reading through the whole of the assessments, make the appropriate copies and gather the necessary materials before you get started. See the list of materials for each of the grade levels below.

### Plan for Data Collection and Data Usage

Consider how and where data will be collected, shared, and utilized. Collecting data for data sake is not purposeful or useful. For those who do not plan to use Forefront, creating formatted spreadsheets for data collection can be helpful. If the decision is made to administer the assessments school-wide or district-wide, make a plan at the beginning for when the results will be discussed, and how they will be used. It is important from the outset that everyone involved understands the purposes for making this commitment.

### Note Taking

Note catchers have been created for all of the assessments. This allows for a little more room for note-taking question by question. As the students respond to the prompts it is important to observe the student closely. Although the numeric data that is collected from these assessments is useful for a number of things, the rich information that comes from noticing the students' strategies is where much of the formative assessment information will come from. Quick Scripts have been created for each of the assessments as well in order to facilitate their administration.

### Who should administer the assessments?

Whenever possible, we suggest that the teacher administer the assessments. The reason for this is that although the data can be helpful, observing and listening to each student is where the most valuable information can come from. If it is impossible for a teacher to administer all of the assessments, consider the following: For students whom the teacher believes will need a more thorough diagnostic assessment anyway, have someone else collect the Screener data and then the teacher can follow up with the diagnostic assessments. For students whom history has shown will have no trouble with the assessment, consider handing off these Screeners to others. However, please take into consideration that even these students are worth assessing because their thinking often reveals surprises.

### Pacing/Time for Administration

These assessments have been designed to be as efficient as possible, however history has shown that teachers need to focus their efforts to move through the assessments. Many students will move through the assessments more quickly, while others will need more time. The previous versions of the Fall Screeners, especially at grades 4-5 often took much longer. Revisions have been made to focus the questions better and improve efficiency. However, it is anticipated that the 4<sup>th</sup> and 5<sup>th</sup> grade Screeners will still take about eight minutes each.

Excessive questioning can cause the assessments to take too long. It is essential to provide ample time for students to think about each task as necessary. However, if a student is taking an inordinate amount of time and does not appear to be able to engage productively in the problem the teacher may ask the student if they need more time, or if they need to hear the question again. When a student is not working productively on a problem, it is appropriate to record the student answer as unsuccessful and move on. Teachers should seek to strike a balance between getting as much information as is useful for informing instruction and maintaining a manageable assessment schedule. Something to consider is to attempt to assess only one or two students per day once routines have been established. This makes the task more manageable.

## *Language Considerations*

Because the assessment is delivered as an interview and the students primarily respond verbally, teachers find that they gain a wealth of information regarding the students' receptive and productive language abilities. Teachers are encouraged to make notes about the students' language usage.

Whenever possible the assessment should be made available in the dominant language of the student and it is suggested to give the assessment in the language of the student's choosing. Be careful, however, for although a student might speak another language at home, it could be that much of their experiences with counting and mathematics has come from school. So, although a student might be more confident with normal conversational language in their home language, they are often more competent in talking about mathematics in the language used primarily for math instruction. It is often highly informative to offer the assessment in two languages for bilingual students, sometimes moving back and forth between languages. Understanding each student's number sense and skills is critical. Understanding their language and ability to access instruction and participate in mathematical discourse is also important.

When administering the assessment in more than one language and recording the data into a data collection system like Forefront, enter the higher of the two scores for the student.

The assessments are currently available in English and Spanish. If you or your district makes other translations, we encourage you to share those back with us so that we can share them with the broader community.

Occasionally the assessment will directly encourage the teacher to check to ensure that the student understands the prompt. When, during the interview assessment, students are presented with a written problem to solve mentally, the teacher is asked to ensure that the student has read the problem correctly.

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## Frequently Asked Questions

### *Should I assess everyone?*

These assessments are designed to be *universal*/screening assessments, so yes. If you have a student who cannot access the test due to a disability enter 1s for the test. This allows districts who are building norms for the assessment to ensure that they are getting accurate percentile bands.

### *I have a student who scored very poorly, should I go down a grade level?*

One way to find out what a student knows is to drop back a grade level in your assessment. That makes total sense. Generally these results are only kept for formative purposes and not entered into Forefront® or your data system so that the local norms are solid, but check with your district leader. This is also true for students who score very well and moving up.

### *Does this identify students for accelerated course work?*

No. This series of assessments is intended to inform instruction for grade level content. For students who are being considered for acceleration a grade level Screener can be added to a body of evidence, but a solid Screener should be only an additional piece, not core to the process.

### *Our teachers are not Add+Vantage Math trained, is this still useful?*

These assessments are useful to all, however with the appropriate training the impact is amplified. The associations with the AVMR assessments also helps to point teachers to the appropriate diagnostic assessment to help guide instructional decision making.

## *Materials Preparation Checklist for Fall Screeners*

### **Kindergarten:**

- Copies of the note catchers: One per student
- Copies of the Quick Script: One for the teacher
- Copies of the detailed script: As necessary for the teacher
- Number and dot cards
- 7 counters of one color, 3 counters of another color
- A piece of paper or a plate for the counter tasks

### **First Grade:**

- Copies of the note catchers: One per student
- Copies of the Quick Script: One for the teacher
- Copies of the detailed script: As necessary for the teacher
- Number cards
- Counters: At least 15 including at least 8 of a single color and 3 of another color
- An opaque cover for the counters (a thin foam sheet, or card stock work well)

### **Second Grade:**

- Copies of the note catchers: One per student
- Copies of the Quick Script: One for the teacher
- Copies of the detailed script: As necessary for the teacher
- Number and dot cards
- Counters: 14 of one color 6 of a second color
- Two opaque covers for the counters (thin foam sheets, or card stock work well)

### **Third Grade:**

- Copies of the note catchers: One per student
- Copies of the Quick Script: One for the teacher
- Copies of the detailed script: As necessary for the teacher
- Cards for question prompts
- Counters: 12 of one color

### **Fourth Grade:**

- Copies of the note catchers: One per student
- Copies of the Quick Script: One for the teacher
- Copies of the detailed script: As necessary for the teacher
- Number and dot cards
- Pencil and paper for student
- Number lines: One for each student

### **Fifth Grade:**

- Copies of the note catchers: One per student
- Copies of the Quick Script: One for the teacher
- Copies of the detailed script: As necessary for the teacher
- Number and other cards
- Number lines: One for each student

## Fall Universal Number Sense Screeners Common Core Alignment

Tasks at each grade level are generally aligned with the end of grade level expectations from the prior grade. However, there are times when the alignment dips to touch on standards from lower grade levels. The alignments are not perfect. For example, it was decided to keep a series of counting questions in at all grade levels in spite of counting skills not being mentioned at each grade level.

Alignments to the “current grade level” align to the work of the grade level, not to the end of year expectations. That is, they represent a preparedness for the learning of the grade level. For example, in the 1<sup>st</sup> Grade Screener, question 1 is to count to 22. The standard referenced for that grade level is 1.NBT.A.1 which expects a student to count to 120.

This series of assessments seeks to strike a balance in three ways. It strives to align with the spirit of the CCSS and the learning progressions that it represents. It also has historic reference, and several questions are included to maintain consistency over time (see in particular 2<sup>nd</sup> grade). This assessment also strives to align with the body of research related to screening tools for mathematics, indicators of number sense, and the Add+Vantage Math assessments. Most importantly I hope that this continues to be a tool that provides accurate and meaningful information teachers and schools everywhere.

Kindergarten	
Question	K - Standard
1. Count to 10	K.CC.A.1
2. Number ID	K.CC.A.3
3. Count 7	K.CC.A.3
4. Cardinality	K.CC.B.4a
5. Add 3 More	K.CC.B.4b
6. Subitize	K.CC.B.4
7. Fingers	K.OA.A.1

1 <sup>st</sup> Grade		
Question	Current Grade	Prior Grade
1. Count to 22	1.NBT.A.1	K.CC.A.1
2. Count from 38-42	1.NBT.A.1	K.CC.A.1
3. Count by 10s	1.NBT.A.1	K.CC.A.1
4. Number ID	1.NBT.A.1	K.CC.A.3
5. 8 and 7 uncovered	1.OA.A	K.CC.B.5
6. 4 and 3 Covered	1.OA.A	K.OA.A.2
7. 8 Covered -2	1.OA.A	K.OA.A.2
8. Four Hidden Bears	1.OA.C.6	K.OA.A.5
9. Two Hidden Bears	1.OA.C.6	K.OA.A.5
10. Ten and three more	1.NBT.B.2	K.NBT.A.1

2 <sup>ND</sup> Grade		
Task	Current Grade	Prior Grade
1. Count 27 - 43	2.NBT.A.2	1.NBT.A.1
2. Count 96 - 120	2.NBT.A.2	1.NBT.A.1
3. Count Back 23 - 10	2.NBT.A.2	1.NBT.A.1
4. Number ID	2.NBT.A.3	1.NBT.A.1
5. 9 and 6 Covered	2.OA.A	1.OA.A.1
6. 14 remove 3	2.OA.A	1.OA.A.1
7. Make 10	2.OA.B.2	1.OA.C.6
8. Make 10 again	2.OA.B.2	1.OA.C.6
9. 10 and 6 more	2.NBT.B.5	1.NBT.B.2
10. 16 and ten more	2.NBT.B.8	1.NBT.C.5

3 <sup>RD</sup> Grade		
Task	Current Grade	Prior Grade
1. Count 496 to 502	3.NBT	2.NBT.A.2
2. Count Back 303 to 298	3.NBT	2.NBT.A.2
3. Number ID	3.NBT	2.NBT.A.3
4. Equi-Partitioning	3.OA.A	Not clearly defined in CCSS See: 1.EQP.A ( <a href="https://sudds.ced.ncsu.edu/wp-content/uploads/2017/02/02132015_NSF_Methods_Presentation_smaller.pdf">https://sudds.ced.ncsu.edu/wp-content/uploads/2017/02/02132015_NSF_Methods_Presentation_smaller.pdf</a> )
5. Count Back by 10s	3.NBT	2.NBT.B.8
6. $45 + 19$	3.NBT.A.2	2.NBT.B.5
7. 50-24	3.OA.A.2	2.NBT.B.5
8. Compare Lengths	3.NBT.D.8	2.MD.B.6 and 2.MD.A.4
8. Decompose 13	3.NBT.A.2	2.OA.B.2
9. Decompose 13 again	3.NBT.A.2	2.OA.B.2

4 <sup>TH</sup> Grade		
Task	Current Grade	Prior Grade
1. Count 995 to 1000	4.NBT	2.NBT.A.2
2. Count Back 602 to 598	4.NBT	2.NBT.A.2
3. Number ID	4.NBT.A.2	2.NBT.A.3
4. 6 x 3 Dots	4.OA	3.OA.A.1 and 2.OA.C.4
5. Write mult. equation	4.OA	3.OA.A.1
7. 10s in 82	4.NBT.A	2.NBT.A.1
8. $596 + 10$	4.NBT.B.4	3.NBT.A.2
9. $400 - 198$	4.NBT.B.4	3.NBT.A.2
10. Fractions on number line	4.NF.B	3.NF.A.2

5 <sup>TH</sup> Grade		
Task	Current Grade	Prior Grade
1. Count Back 1002 to 997	5.NBT	4.NBT.A.1
2. Numeral ID	5.NBT	4.NBT.A.2
3. Fluency $6 \times 4$	5.NBT.B.5	3.OA.C.7
4. Fluency $28/4$	5.NBT.B.6	3.OA.C.7
5. $30 \times 4$	5.NBT.B.5	3.NBT.A.3
6. $29 \times 4$	5.OA	4.NBT.B.5
7. Tens in 132	5.NBT.B.6	4.NBT.B.6
8. $\$20 - \$12.25$	5.NBT.B.7	4.NBT.B.4
9. Fractions and decimals on number line	5.NF	3.NF.A.2, 4.NF.C,

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*The resources listed below were used to inform the development of the Number Sense Screener series either directly or indirectly.*

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# Kindergarten: Fall

## Number Sense Screener

Note Catcher, *print 1 copy/student*

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Teacher: \_\_\_\_\_

Language of Assessment:  English  Spanish  Other: \_\_\_\_\_

AVMR Assessment(s) Suggested?  No  Yes (see below)

Number Words and Numerals	score
<p><b>1. "I'd like to hear you count. Start counting from 1." (Score through 10) (Counts to: ___)</b></p> <p><input type="checkbox"/> correct 1st attempt: 3 pts    <input type="checkbox"/> correct on 2<sup>nd</sup> attempt or not fluent: 2 pts    <input type="checkbox"/> unsuccessful: 1 pt</p> <p>Notes:</p>	
<p><b>2. Numeral Identification Cards:</b></p> <p>8 ___ 5 ___ 3 ___ 6 ___ 2 ___ 7 ___ 9 ___ 1 ___ 4 ___ 10 ___</p> <p><input type="checkbox"/> all correct: 3 pts    <input type="checkbox"/> 7 - 9 correct: 2 pts    <input type="checkbox"/> 6 or fewer correct: 1 pt</p> <p>Notes:</p>	
AVMR Number Words and Numerals Assessment recommended? _____	
Counting and Cardinality	score
<p><b>3. Counts 7 counters of a single color</b></p> <p><input type="checkbox"/> correct on first attempt: 3 pts    <input type="checkbox"/> correct on 2<sup>nd</sup> attempt: 2 pts    <input type="checkbox"/> unsuccessful: 1pt</p> <p>Notes:</p>	
<p><b>4. 7 counters rotated</b></p> <p><input type="checkbox"/> answers 7 without recounting: 3 pts    <input type="checkbox"/> recounts 7: 2 pts    <input type="checkbox"/> unsuccessful: 1 pt</p> <p>Notes:</p>	
<p><b>5. 7 and 3 more</b></p> <p><input type="checkbox"/> correct: does not recount the 7: 3 pts    <input type="checkbox"/> correct: counts all: 2 pts    <input type="checkbox"/> unsuccessful: 1 pt</p> <p>Notes:</p>	
AVMR Addition and Subtraction Assessment recommended? _____	
Structuring Number	score
<p><b>6. Dot cards flash (Subitizing)</b></p> <p><input type="checkbox"/> correct for both cards: 3 pts    <input type="checkbox"/> correct for one card: 2 pts    <input type="checkbox"/> incorrect for both: 1 pt</p> <p>Notes:</p>	
<p><b>7. 5 fingers, then 3 fingers</b></p> <p><input type="checkbox"/> correct without counting by 1s    <input type="checkbox"/> correct, counts to show either    <input type="checkbox"/> unable to show one</p> <p>Notes:</p>	
AVMR Structuring Number Assessment recommended? _____	



# Kindergarten: Fall

## Number Sense Screener

Script, *print 1 copy/test administrator*

### Number Words and Numerals

1. "I'd like to hear you count. Start counting from 1 and I'll tell you when to stop." Score task based on ability to count to ten. Teachers may allow student to count beyond 10 if it is informative.

If student is unsuccessful on first attempt, ask student to count again. "OK, can you count again for me? Start from 1."

2. Place the cards in front of the student one at a time in the order listed).

8 5 3 6 2 7 9 1 4 10

"Read this card to me." (check if correct; record incorrect answers.)

### Counting and Cardinality

3. Put out 7 red counters on a plate and ask, "How many counters are here?"  
If student is incorrect, have them attempt again.
4. Confirm that there are 7 for the student. Demonstrate count the 7 if the student was unsuccessful. With the student watching, rotate the plate one half turn.  
"How many counters are here?"
5. Confirm again that there are 7 counters. Leave the 7 red counters where they are and place 3 blue counters randomly spaced next to the red ones. "How many are there now?"

### Structuring Number

6. "I am going to show you a card quickly. Tell me how many dots you see."  
Flash dot cards (5 then 3) for about  $\frac{1}{2}$  second.
7. "Show me 5 fingers." After student has shown their answer, say, "OK, put your fingers down. Now show me 3 fingers."



# Kindergarten: Fall

## Number Sense Screener

Spanish Script, *print 1 copy/test administrator*

### Number Words and Numerals

1. **“Comienza a contar desde el 1 y yo te diré cuándo parar.”** Score task based on ability to count to ten. Teachers may allow student to count beyond 10 if it is informative. If student is unsuccessful on first attempt, ask student to count again. **“Ok, ¿Puedes contar otra vez? Empieza desde 1.”**
2. Place the cards in front of the student one at a time, in the order listed.  
8 5 3 6 2 7 9 1 4 10  
**“Léeme esta tarjeta.”** (check if correct; record incorrect answers.)

### Counting and Cardinality

3. Put out 7 red counters on a plate and ask, **“¿Cuántas fichas hay aquí?”**  
If student is incorrect, have them attempt again.
4. Confirm that there are 7 for the student. Demonstrate count the 7 if the student was unsuccessful. With the student watching, rotate the plate one half turn.  
**“¿Cuántas fichas hay aquí?”**
5. Confirm again that there are 7 counters. Leave the 7 red counters where they are and place 3 blue counters randomly spaced next to the red ones. **“¿Cuántas hay ahora?”**

### Structuring Number

6. **“Te voy a mostrar una tarjeta rápidamente. Dime cuántos puntos ves.”**  
Flash dot cards (5 then 3) for about  $\frac{1}{2}$  second.
7. **“Muéstrame 5 dedos.”** After student has shown their answer, say, **“OK, pon tus dedos abajo. Muéstrame 3 dedos.”**



# Kindergarten: Fall

## Administration Guide

Scoring Guide, *print 1 copy/test administrator*

### Number Words and Numerals

1. “Start counting from 1 and I’ll tell you when to stop.” If the student is unsuccessful on first attempt, ask the student to do it again. Score task based on ability to count to ten. Teachers may allow student to count beyond 10 if it is informative.

3	2	1
<b>Correct 1st attempt:</b> Counts to 10 successfully on the first attempt without long pauses or self-corrections	<b>Correct on 2<sup>nd</sup> attempt or not fluent:</b> Counts to 10 on second attempt or has pauses or self-corrections.	<b>Unsuccessful:</b> Student does not demonstrate the ability to count to 10 in any language.
<p><b>Commentary:</b> The ability to count to 10 is fundamental and is a goal of most preschool programs, and it is something that most parents will do with their children. Students who are unable to count to ten at the beginning of kindergarten will likely need extra targeted instruction and practice in order to catch up with their peers. Talking with parents about the importance of counting is also appropriate.</p> <p><b>Note regarding bilingual students:</b> It is appropriate to assess students in both the home language as well as the language of instruction. Score for the better performance. If a student is able to count well in their home language, use that to score this task regardless of their performance in the language of instruction.</p>		

2. Place the cards in front of the student one at a time (not in numerical order).

“Read this card to me.” (check if correct; record incorrect answers.)

8 5 3 6 2 7 9 1 4 10

3	2	1
<b>All correct:</b> Student is able to read all of the numbers. Self-corrections and pauses are OK.	<b>7-9 correct:</b> Student is able to read 7 – 9 of the numbers.	<b>6 or fewer correct:</b> Student reads 6 or fewer of the numbers correctly.
<p><b>Commentary:</b> As with counting to ten, reading numbers to 10 is a goal of most preschool programs. Take note of those students who can read very few numbers. Promptly provide targeted instruction and check their progress regularly.</p> <p>Historically about 60% of students in the Forefront Global have scored 3 on this task.</p> <p>Note: If a student counts up in order to name the number (e.g. when looking at a 6, they say, “1, 2, 3, 4, 5, 6. Six. It’s a six.” or something to that effect) take note. Count this as correctly identifying the numeral, but continue working until full automaticity is attained.</p>		



# Kindergarten: Fall

## Counting and Cardinality

3. Put out 7 red counters on a plate (or piece of paper) and ask, “How many counters are here?” If student is incorrect on the first try, have them attempt again. If the student seems reluctant to touch the objects say, “You can touch the objects as you count.”

3	2	1
<b>Correct on 1<sup>st</sup> attempt:</b> Student demonstrates one-to-one correspondence and answers that there are seven	<b>Correct on 2<sup>nd</sup> attempt:</b> Student is able to correctly count when asked to count a second time.	<b>Unsuccessful:</b> Student is unable to count the set of 7 counters.
<b>Commentary:</b> This task includes several pieces of knowledge that are often so subtle that they are overlooked. When a student knows to counts in response to the question, “How many?” that is important. Take note of which students do not count. Then there is the understanding that as each number is said, an object is touched or pointed to. (1:1 correspondence) Some students will use a pull-off strategy, to group the objects as they are counted. This is an important skill that some students come to kindergarten with and should be explicitly taught to all students. Lastly, there is the understanding that when the count is complete, the last number said indicates the total number of objects in the set (cardinality). Teachers should notice the strategies that they use to enumerate the set and, especially for students who are unsuccessful, note the things they do well.		

4. Confirm that there are 7 for the student. Demonstrate how you count the 7 if the student was unsuccessful. With the student watching, rotate the plate one half turn.

“How many counters are here?”

3	2	1
<b>Student answers 7 without recounting:</b> Student sees that nothing has changed and that the answer must still be 7.	<b>Student recounts the 7:</b> Student counts again to see that there are 7.	<b>Unsuccessful:</b> Student does not answer that there are 7 counters.
<b>Commentary:</b> As you administer this task it is important that the student sees clearly that no counters have been added or removed. This task, which has its roots in ideas conservation of number that go back nearly 80 years to the research of Piaget, helps to reveal which students have developed a beginning understanding composite units, and that the position of the objects does not matter for the number.		



# Kindergarten: Fall

5. Confirm again that there are 7 counters. Leave the 7 red counters where they are and place 3 blue counters randomly spaced next to the red ones. **“How many are there now?”**

3	2	1
<b>Correct, does not recount the 7:</b> Student recognizes that the 7 does not need to be counted yet again and continues the count or promptly answers 10.	<b>Correct, counts all:</b> Student recounts the full set to answer 10.	<b>Unsuccessful:</b> Student does not respond that there are 10 objects.
<p><b>Commentary:</b> The colors of the counters don't matter except that the set of 7 should be all the same color and the 3 extras should be of a different color. This is a very difficult task which reveals more about students who might benefit from extensions and enrichment opportunities.</p> <p>Historically fewer than 20% of students in the Forefront Global Cohort score 3 on this task.</p>		

## Structuring Number

6. **“I am going to show you a card quickly. Tell me how many dots you see.”**

Flash dot cards for about ½ second.

3	2	1
<b>Correct for both cards</b>	<b>Correct for one card</b>	<b>Incorrect for both</b>
<p><b>Commentary:</b> This task is intended to test for the ability to quickly recognize quantities without needing to count. This ability, known as subitizing, is widely agreed to be an important fundamental skill and a strong indicator of number sense. For students who score a 1 on this task an Add+Vantage Math Structuring Number assessment would be helpful.</p>		

7. **“Show me 5 fingers.”** After student has shown their answer, say, **“Ok, put your fingers down. Now show me 3 fingers.”**

3	2	1
<b>Correct without counting by ones:</b> Student raises fingers all at once for both 3 and 5	<b>Correct, counts by ones:</b> Student raises fingers one at a time for either 3 or 5	<b>Either incorrect:</b> The student does not show both 5 fingers and 3 fingers when prompted.
<p><b>Commentary:</b> This task, which has been added for this revised version of the Fall Screeners, is another classic indicator of number sense. Watch students closely on this task for how they think. The ability to solve addition and subtraction problems using fingers is important to the work of kindergarten, and the ability to represent these basic numbers on fingers is an important foundational skill for that work.</p>		



8

5

3

6

2

7

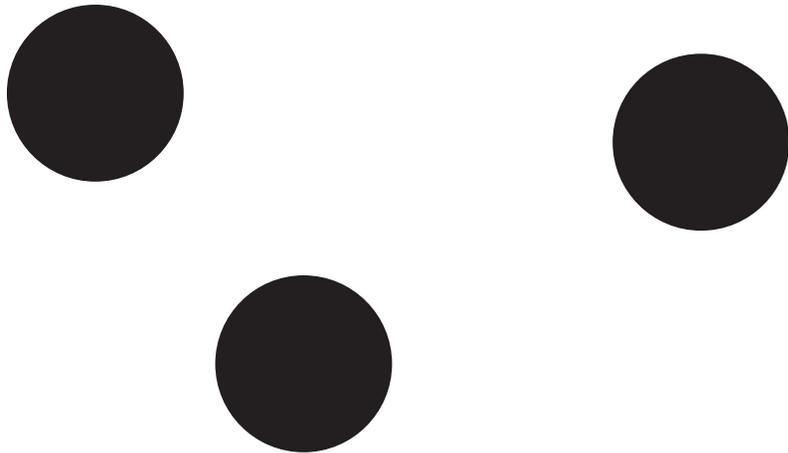
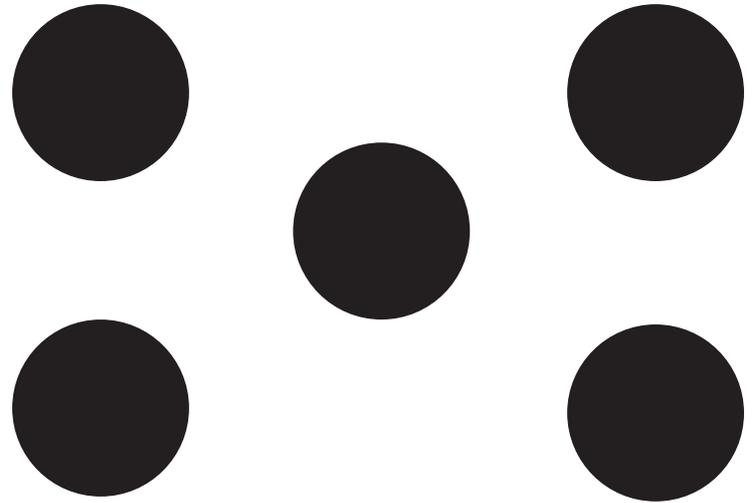
9

1



4

10



# Grade 1: Fall

## Number Sense Screener

Note Catcher, *print 1 copy/student*

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Teacher: \_\_\_\_\_

Language of Assessment:  English  Spanish  Other: \_\_\_\_\_

AVMR Assessment(s) Suggested?  No  Yes (see below)

Number Words and Numerals	score
<i>scoring: correct &amp; fluent: 3pts, correct, but uncertain: 2pts, unsuccessful: 1 pt</i>	
1. "Start counting from 1 and I will tell you when to stop." (stop at 22) Notes:	
2. "Start counting again. This time start at the number 38." (stop at 42) Notes:	
3. Count by 10s. (Stop at 100) Notes:	
4. Numeral Identification: 8 _____ 5 _____ 12 _____ 17 _____ 20 _____ <input type="checkbox"/> correct and fluent: 3 pts <input type="checkbox"/> correct but uncertain: 2 pts <input type="checkbox"/> any unsuccessful: 1 pt Notes:	
AVMR Number Words and Numerals Assessment recommended: _____	
Addition and Subtraction	score
<i>scoring: correct on the first attempt: 3 pts, correct on second attempt: 2 pts, unsuccessful: 1 pt</i>	
5. Count 15 counters Notes:	
6. $4 + 3 = 7$ with covered counters Notes:	
7. $8 - 2 = 6$ with counters partially covered Notes:	
AVMR Number Words and Numerals Assessment recommended? _____	
Structuring Number	score
<i>scoring: correct/automatic: 3 pts, correct/works out (fingers, counting): 2 pts, incorrect: 1 pt</i>	
8. 5 bears, then 4 covered Notes:	
9. 5 bears, then 2 covered Notes:	
AVMR Structuring Number Assessment recommended? _____	
Place Value	score
10. 10 dots and 3 more <input type="checkbox"/> 13 w/o counting or counts from 10: 3 pts <input type="checkbox"/> correct counts all: 2 pts <input type="checkbox"/> incorrect: 1 pt Notes:	
AVMR Place Value Assessment recommended? _____	



# Grade 1: Fall

## Number Sense Screener

Script, *print 1 copy for test administrator*

### Number Words and Numerals

1. **“Start counting from 1 and I will tell you when to stop.”** (stop at 22)
2. **“Start counting again. This time start at the number 38.”** (stop at 42)  
If the student has difficulties getting started say, **“Say the number 38.”** (Child says 38)  
**“Good, now keep counting.”**
3. **“Count by tens.”** (stop at 100)
4. Numeral Identification Cards: 8, 5, 12, 17, 20.  
Lay the cards out one at a time and ask, **“What number is this?”**

### Addition and Subtraction

5. Put out 15 counters. Ask, **“How many counters are there altogether?”**  
If student is unsuccessful on first attempt say, **“Let’s check that. Count them again very carefully.”**
6. Place four counters in front of the student and cover without allowing the student to count. **“Here are 4 red counters.”** Cover three more counters with a second cover. **“Here are 3 blue counters. How many counters are there altogether?”**  
Repeat the task if not successful on first attempt.
7. Place 8 red counters in front of the student. **“Here are 8 red counters.”**  
Cover without allowing the student to count. Remove 2 counters and leave them uncovered. **“How many are left under here?”** Point to the cover.  
If student is unsuccessful on first attempt collect the 8 counters again. Count them aloud, put them in a line, and cover again. Remove two and ask, **“How many are still under here?”**

### Structuring Number

8. Present bear card. Ask, **“How many bears are there?”** Confirm that there are 5. Without child seeing, cover 4 bears.  
**“How many bears do you see now? How many are hidden?”**
9. Present bear card again. **“How many bears are there?”** Confirm that there are 5. Without child seeing, cover 2 bears.  
**“How many bears do you see? How many are hidden?”**

### Place Value

10. **“Here I have 10 dots.”** Put the ten-frame onto the table in front of the child. **“Here, I have 3 more. How many are there all together?”**



# Grade 1: Fall

## Number Sense Screener

Spanish Script, *print 1 copy/test administrator*

### Number Words and Numerals

1. “Comienza a contar desde el 1 y te diré cuándo parar.” (stop at 22)
2. “Comienza a contar de nuevo. Esta vez empieza con el número 38. (stop at 42)  
If the student has difficulties getting started say, “Diga el numero 38.” (Child says 38)  
“Bueno, sie contanto.”
3. “Cuenta de diez en diez.” (stop at 100)
4. Numeral Identification Cards: 8, 5, 12, 17, 20.  
Lay the cards out one at a time and ask, “¿Qué número es este?”

### Addition and Subtraction

5. Put out 15 counters. Ask, “¿Cuántas fichas hay?”  
If student is unsuccessful on first attempt say, “Vamos a revisar, cuenta de nuevo con mucho cuidado.”
6. Place four counters in front of the student and cover without allowing the student to count. “Aquí hay 4 fichas rojas.” Cover 3 more counters with a second cover, “Aquí hay 3 fichas azules. ¿Cuántas fichas hay en total?”  
Repeat the task if not successful on first attempt.
7. Place 8 red counters in front of the student. “Aquí hay 8 fichas rojas.”  
Cover without allowing the student to count. Remove 2 counters and leave them uncovered. “¿Cuántas quedan aquí debajo?” Point to the cover.  
If student is unsuccessful on first attempt collect the 8 counters again. Count them aloud, put them in a line, and cover again. Remove two and ask, “¿Cuántas quedan todavía aquí debajo?”

### Structuring Number

8. Present bear card. Ask, “¿Cuántos osos hay?” Confirm that there are 5. Without child seeing, cover 4 bears.  
“¿Cuántos osos ves ahora? ¿Cuántos están escondidos?”
9. Present bear card again. “¿Cuántos osos hay?” Confirm that there are 5. Without child seeing, cover 2 bears. “¿Cuántos osos ves? ¿Cuántos están cubiertos?”

### Place Value

10. “Aquí tengo diez puntos.” Put the ten-frame onto the table in front of the child. “Aquí tengo tres más. ¿Cuántos hay en total?”



# Grade 1: Fall

## Administration Guide

Scoring Guide, *print 1 copy/test administrator*

### Number Words and Numerals

#### 1. "Start counting from one and I will tell you when to stop." (Stop at 22)

3	2	1
<b>Correct/fluent:</b> Listen carefully. If a student appears to skip a number, have them try again. Sometimes it helps to ask the student to count slowly and loudly.	<b>Correct, but uncertain:</b> Enter a score of 2 if the student is hesitant or makes self-corrections.	<b>Unsuccessful:</b> Student is unable to complete the count to 22 without errors.
<b>Commentary:</b> By the end of kindergarten students are expected to be able to count to 100 starting from any number in the sequence. The ability to be able to count is an important foundational skill and one that is highly indicative success in first grade. Students who are unable to count to 22 should immediately be considered for targeted instruction and their progress should be monitored.  For students who score 1 or 2 on this task consider the Add+Vantage Math Recovery Assessment Number Words and Numerals.		

#### 2. "Start counting again. This time start at the number 38." (stop at 42)

If the student has difficulties getting started say, "Say the number 38." (Child says 38) "Good, now keep counting."

3	2	1
<b>Correct/fluent:</b> Student counts from 38-42 without delays or self-corrections.	<b>Correct, but uncertain:</b> Student is able to complete the count but makes-self corrections, is hesitant, or needs to drop back for a "running start."	<b>Unsuccessful:</b> Student is unable to complete the count.
<b>Commentary:</b> The ability to start a count at any number in the sequence is a foundational skill for using counting on for addition and counting back for subtraction. For students who score 1 on this task consider the Add+Vantage Math Recovery Assessment Number Words and Numerals.		



# Grade 1: Fall

3. “Count by tens.” (Stop at 100) If a student is unsure what the prompt means and hesitates to start or starts counting 10, 11, 12, etc. it is ok to support the student by saying, “Count by tens, like this 10, 20...” (do not go past 20 with this additional prompt.)

3	2	1
<p><b>Correct/fluent:</b> Students counts by tens without significant pauses. Minor self-corrections are ok.</p>	<p><b>Correct, but uncertain:</b> Student makes longer pauses, and or makes self-corrections. If the student makes mistakes on the first count and you ask them to try again and they are successful on a second attempt enter a 2.</p>	<p><b>Unsuccessful:</b> Student is unable to count by 10s to 100.</p>
<p><b>Commentary:</b> The ability to count by 10s is critical for the development of place value concepts. Although the student might not yet have a full understanding of tens, fluency with the verbal sequence will support later conceptual development. This is a skill that all students should continue to master in first grade as they move beyond 100 in their counts and as they learn to add 10 to any number under 100.</p>		

4. Numeral Identification: Present each numeral card one at a time in this order.

“What number is this?” 8, 5, 12, 17, 20

3	2	1
<p><b>All correct, confident:</b> Student responds to each card promptly with the correct answer.</p>	<p><b>All correct, but uncertain:</b> Student expresses uncertainty, self corrects or otherwise shows that they need more practice with reading numerals under 20.</p>	<p><b>Any Incorrect:</b> Student is unable to read one or more of the numbers.</p>
<p><b>Commentary:</b> This quick sampling of numerals is used to determine quickly if a student is confident with reading numbers to 20. Use this screener to determine which students to assess for their ability to read all numbers under 20 quickly and easily. If the student reads 17 as 70 make note. If this is the only mistake score as a 2.</p> <p>For students who score 2 or 1 consider using AVMR Number Words and Numerals Assessment.</p>		

# Grade 1: Fall

## Addition and Subtraction

5. Put out 15 counters for the child to count. Can be multiple colors or all one color. **“How many counters are here?”**

3	2	1
<b>Correct on first attempt:</b> Student demonstrates one-to-one correspondence and a solid number word sequence to 15.	<b>Correct on 2nd attempt:</b> Student makes minor errors in counting that lead to inconsistency.	<b>Unsuccessful:</b> Student is unable to count a set of 15 objects.
<p>The ability to enumerate a set of up to 20 objects is indicative of not only an important skill, but also critical cognitive development. Students who are unable to count a set of up to 20 objects should receive targeted instruction and progress should be monitored. If there is any doubt that the student has not yet developed cardinality, after the student has completed the count ask, “So, how many are there?” If the student proceeds to count again take note of this. Students need to know that the last number said when counting represents the total number of objects in the set. If, when asked, the student counts the set again it is likely that some explicit instruction is necessary. Telling the student directly, “When we count, the last number we say is how many are there. So how many counters are there?” when counting sets will support students in developing this understanding.</p> <p>For students who are unsuccessful, consider administering AVMR Addition and Subtraction assessment.</p>		

6. Put 4 counters all of the same color in front of the child. **“Here are four counters.”** Cover them without allowing the child to count. Put out 3 more counters of a different color next to the 4. **“I am putting 3 more counters here.”** Cover them without allowing the child to count. Using your hand to indicate both groups, **“How many are there altogether?”**

3	2	1
<b>Correct on first attempt:</b> Student correctly answers 7. A variety of solution strategies are possible and all are valid	<b>Correct on second attempt:</b> Student is unsuccessful on the first attempt, but is able to find the correct answer on 2nd attempt. Any solution strategy is acceptable.	<b>Unsuccessful:</b> Student is unable to solve the task successfully.
<p>This task is a strong number sense indicator, in that it is a simple task within finger range. Students who are unsuccessful with this task would likely benefit from prompt targeted instruction. The ability to solve this task is indicative of cognitive development that is foundational for success in 1st grade.</p>		

# Grade 1: Fall

7. Place 8 red counters in front of the student. “Here are 8 red counters” (Cover without allowing the student to count.) Remove 2 counters and leave them uncovered. “I took two counters back out. How many are still under here?” Point to the cover.

If the student is unsuccessful, collect the counters and lay them down again, putting them into a line as you count them aloud. Cover them. “There are 8 counters under here. I am removing two. How many are still under here?”

3	2	1
<b>Correct on first attempt:</b> Student correctly answers 6 on first attempt.	<b>Correct on second attempt:</b> With the additional support of counting and structure student answers correctly.	<b>Unsuccessful:</b> After the 2nd presentation, student is still unable to solve.
Subtraction is a difficult topic to teach and to learn. Students who score 1 on this task will need additional instructional supports when subtraction is introduced in 1st grade, which is often very early in the year. Consider the drawn and material supports that can be used to support students in being successful, but also for developing conceptual understanding. These same students will also likely benefit from targeted instruction. To further determine where the instructional starting point is, consider presenting a smaller number of counters (4 or 5) and remove one to see if the student is able to answer.		

# Grade 1: Fall

## Structuring Number

8. Present bear card. Ask, “How many bears are there?” Confirm that there are 5. Without child seeing, cover 4 bears. “How many bears do you see now? How many are hidden?”

9. Present bear card again. “How many bears are there?” Confirm that there are 5. Without child seeing, cover 2 bears. “How many bears do you see? How many are hidden?”

3	2	1
<b>Correct and Automatic:</b> Student quickly is able to identify the number of hidden bears without signs of counting.	<b>Correct/Works out:</b> Student is able to tell the numbers of hidden bears, but needs to count and/or use fingers to work out.	<b>Unsuccessful:</b> Student is unable to accurately determine the number of hidden bears.
<p><b>Commentary:</b> Knowing combinations to 5 is a critical milestone on the road to fluency with addition and subtraction.</p> <p>Students who are unsuccessful with these tasks will need ample opportunities for them to develop this fluency if they are going to reach the end of 1st grade goal, which is fluency within 10.</p>		

## Place Value

10. “Here I have 10 dots.” Put the ten-frame onto the table in front of the child. “Here, I have 3 more. How many are there all together?”

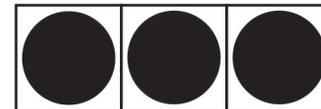
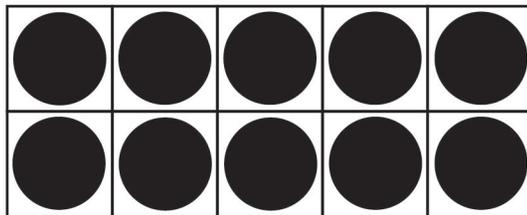
3	2	1
<b>Correct, counts from 10 or answers without counting:</b> Student operates off the ten without needing to count the ten.	<b>Correct, Counts All:</b> Student counts the ten and the three to answer 13	<b>Unsuccessful:</b> Student does not answer 13
<p><b>Commentary:</b> The ability to operate off of 10 is foundational for much of the work related to place value in 1<sup>st</sup> grade. Learning to do this takes time and this ability is an important developmental landmark. For students who score at a level 1 on this task, there is important work to do related to 1:1 correspondence and targeted supports are likely necessary.</p> <p>Students who score 1 on his task should be further assessed, an Add+Vantage Math Recovery Addition &amp; Subtraction test is recommended.</p>		

8

5

12 20

17



# Grade 2: Fall

## Number Sense Screener

Note Catcher, *print 1 copy/student*

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Teacher: \_\_\_\_\_

Language of Assessment:  English  Spanish  Other: \_\_\_\_\_

AVMR Assessment(s) Suggested?  No  Yes (see below)

Number Words and Numerals	score
<i>scoring: correct &amp; fluent: 3 pts, correct but uncertain: 2 pts, unsuccessful: 1 pt</i>	
1. "Start counting from 27 and I will tell you when to stop." (Stop at 43) Notes:	
2. "Start counting from 96 and I will tell you when to stop." (Stop at 120) Notes:	
3. Count backwards from 23 to 10 Notes:	
4. Numeral Identification: 66 ____ 71 ____ 90 ____ 17 ____ 54 ____ <input type="checkbox"/> correct and fluent: 3 pts <input type="checkbox"/> correct but uncertain: 2 pts <input type="checkbox"/> any unsuccessful: 1 pt Notes:	
AVMR Number Words and Numerals Assessment recommended? _____	
Addition and Subtraction	score
<i>scoring: correct on the first attempt: 3 pts, correct on second attempt: 2 pts, unsuccessful: 1 pt</i>	
5. $9 + 6$ with covered counters Notes:	
6. $14 - 3$ with partially covered counters Notes:	
AVMR Number Words and Numerals Assessment recommended? _____	
Structuring Number	score
<i>scoring: correct and automatic: 3 pts, correct/works out: 2 pts, unsuccessful: 1 pt</i>	
7. Two numbers that make 10: ____ + ____ Notes:	
8. Another two numbers that make 10: ____ + ____ Notes:	
AVMR Structuring Number Assessment recommended? _____	
Place Value	score
9. 10 and 6 more <input type="checkbox"/> correct without counting: 3 pts <input type="checkbox"/> counts by ones to solve: 2 pts <input type="checkbox"/> unsuccessful: 1 pt Notes:	
10. 16 and 10 more <input type="checkbox"/> correct: w/o counting by ones: 3 pts <input type="checkbox"/> correct: counts by ones: 2 pts <input type="checkbox"/> unsuccessful: 1 pt Notes:	
AVMR Place Value Assessment recommended? _____	



# Grade 2: Fall

## Number Sense Screener

Script, *print 1 copy for test administrator*

### Number Words and Numerals

1. "Start counting from 27 and I will tell you when to stop." (Stop at 43)
2. "Start counting from 96 and I will tell you when to stop." (Stop at 120)
3. "Count backward from 23 and I will tell you when to stop." (stop at 10) If the student at first counts up, interrupt them to correct them, saying, "That is counting up. This time we are counting down, to zero."
4. Numeral Identification Cards: 66, 71, 90, 17, 54.  
Lay the cards out one at a time and ask, "What number is this?"

### Addition and Subtraction

5. "Here are 9 blue counters." (Cover.) "Here are 6 red counters." (Cover.) "How many counters are there all together?"  
If the student is unsuccessful on the first attempt show the whole task again.
6. Put out 14 counters of one color. (Cover.)  
"Here are 14 counters." Remove 3 counters and cover. "I'm taking away 3. How many counters are still under here?" Gesture to the first cover.  
If the student is not successful on first attempt pose the question a second time.

### Structuring Number

7. "Tell me two numbers that go together to make 10." (Prompt for addition.)
8. "Tell me another two numbers that go together to make 10." (Prompt for addition.)  
If the student says 10 and 0 do not score and ask for another combination.

### Place Value

9. Put a 10-frame on the table. "I have some dots here. How many do you think there are?" If student doesn't know, take note and have the student count. Confirm that there are 10 dots. Slide them under a cover. "I put these 10 dots under here, and now I am going to add 6 more." Show the 6 dots. Slide them under the cover. "How many are under here now?"
10. Confirm that there are 16. (If student was unsuccessful, reveal all the dots and demonstrate a count like this. "There are 16. Look, 10 (gesturing to the strip of ten) 11, 12, 13, 14, 15, 16." (pointing to the six dots). Ten and six is sixteen." Cover again. "There are 16 dots under here. I am going to put another strip of 10." Show the strip of 10 and slide it under with the 16. "How many are under here now?"



# Grade 2: Fall

## Number Sense Screener

Spanish Script, *print 1 copy for test administrator*

### Number Words and Numerals

1. “Comienza a contar desde el 27 y yo te diré cuándo parar.” (Stop at 43)
2. “Comienza a contar desde el 96 y yo te diré cuándo parar.” (Stop at 120)
3. “Cuenta hacia atrás desde el 23 y yo te diré cuándo parar.” (stop at 10) If the student at first counts up, interrupt them to correct them, saying, “Eso es contar hacia arriba. Estamos contando hacia abajo, hacia el cero.”
4. Numeral Identification Cards: 66, 71, 90, 17, 54.  
Lay the cards out one at a time and ask, “¿Qué número es este?”

### Addition and Subtraction

5. “Aquí hay 9 fichas azules.” (Cover.) “Aquí hay 6 fichas rojas” (Cover.) “¿Cuántas fichas hay en total?”  
If the student is unsuccessful on the first attempt show the whole task again.
6. Put out 14 counters of one color. (Cover.)  
“Aquí hay 14 fichas.” Remove 3 counters and cover. “Voy a quitar 3. ¿Cuántas fichas hay todavía aquí debajo?” Gesture to the first cover.  
If the student is not successful on first attempt pose the question a second time.

### Structuring Number

7. “Dime dos números que juntos sumen 10.” (Prompt for addition.)
8. “Dime otros dos números que juntos sumen 10.” (Prompt for addition.)  
If the student says 10 and 0 do not score and ask for another combination.

### Place Value

9. Put a 10-frame on the table. “Tengo algunos puntos aquí. ¿Cuántos piensas que hay?” If student doesn't know, take note and have the student count. Confirm that there are 10 dots. Slide them under a cover. “Puse estos 10 puntos debajo y ahora voy a sumar 6 más.” Show the 6 dots. Slide them under the cover. “¿Cuántos hay aquí debajo ahora?”
10. Confirm that there are 16. (If student was unsuccessful, reveal all the dots and demonstrate a count like this. “Hay 16. Mira, 10 (gesturing to the 10-frame) 11, 12, 13, 14, 15, 16.” (pointing to the six dots). Diez y seis es dieciseis.” Cover again.  
“Hay 16 puntos aquí debajo. Voy a poner otros 10.” Show the 10-frame and slide it under with the 16. “¿Cuántos hay ahora?”



# Grade 2: Fall

## Administration Guide

Scoring Guide, *print 1 copy/test administrator*

### Number Words and Numerals

#### 1. "Start counting from 27 and I will tell you when to stop" (Stop at 43)

3	2	1
<b>Correct and fluent:</b> Student starts counting and continues to count correctly without long pauses for thinking or self-corrections.	<b>Correct, but uncertain:</b> The student is able to complete the count, but looks often to the teacher for reassurance, has longer pauses for thinking, or makes self-corrections.	<b>Unsuccessful:</b> Student is unable to count starting at 27, or makes mistakes in the sequence. If you feel that the student has made these mistakes and would be able to self-correct on a second attempt, prompt the student to start over and if student is correct, score as 2.
<p>Commentary: The ability to count within 100 starting from any number in the sequence is a kindergarten expectation. This is indicative of not only a skill, but also important foundational conceptual development.</p> <p>Students who score a 1 on this task should be recommended for an AVMR Number Words &amp; Numerals assessment.</p>		

#### 2. "Start counting from 96 and I will tell you when to stop." (Stop at 120)

3	2	1
<b>Correct and fluent:</b> Student starts counting and continues to count correctly without long pauses for thinking or self-corrections.	<b>Correct, but uncertain:</b> The student is able to complete the count, but looks often to the teacher for reassurance, has longer pauses for thinking, or makes self-corrections.	<b>Unsuccessful:</b> Student is unable to count starting at 27 or makes mistakes in the sequence. If you feel that the student has made these mistakes and would be able to self-correct on a second attempt, prompt the student to start over and if student is correct, score as 2.
<p>Commentary: The ability to count within 120 starting from any number in the sequence is a 1<sup>st</sup> Grade (1.NBT.A.1) expectation. This is indicative not only of a skill, but also important foundational conceptual development.</p> <p>Students who score a 1 on this task should be recommended for an AVMR Number Words &amp; Numerals assessment.</p>		

# Grade 2: Fall

3. “Count backward from 23 and I will tell you when to stop.” (stop at 10) If the student at first counts up, interrupt them to correct them, saying, “That is counting up. This time we are counting down, to zero.”

3	2	1
<b>Correct and fluent:</b> Student starts counting down and continues to count correctly without long pauses for thinking or self-corrections.	<b>Correct, but uncertain:</b> The student is able to complete the count, but looks often to the teacher for reassurance, has longer pauses for thinking, or makes self-corrections.	<b>Unsuccessful:</b> Student is unable to count starting at 27 or makes mistakes in the sequence. If you feel that the student has made these mistakes and would be able to self-correct on a second attempt, prompt the student to start over and if student is correct, score as 2.
<p>Commentary: The ability to count within 100 starting from any number in the sequence is a kindergarten expectation. This is indicative of not only a skill, but also important foundational conceptual development.</p> <p>Students who score a 1 on this task should be recommended for an AVMR Number Words &amp; Numerals assessment.</p>		

4. Numeral Identification Cards: 66, 71, 90, 17, 54.

Lay the cards out one at a time and ask, “What number is this?”

3	2	1
<b>Correct and fluent:</b> Student correctly reads the number with certainty.	<b>Correct, but uncertain:</b> The student reads the numbers correctly, but perhaps looks to the teacher for reassurance, has longer pauses for thinking, or makes self-corrections. If the child appears to say “70” when presented with the number 17 take note and score as a 2.	<b>Unsuccessful:</b> Student makes a mistake when reading one or more numbers (see the possible exception for 17 or 90). Student makes errors indicative of issues with reading numbers under 100.
<p>Commentary: The ability to read numbers under 100 is a 1<sup>st</sup> Grade Standard. Given that students will be working extensively with numbers to 100 in 2<sup>nd</sup> Grade, knowing number names and being able to read and write numbers is an essential, fundamental skill for accessing the grade level curriculum. This is a very brief sampling of numbers under 100. If there is any doubt, further assessment should happen.</p> <p>Students who score a 1 on this task should be recommended for an AVMR Number Words &amp; Numerals assessment.</p>		

# Grade 2: Fall

## Addition and Subtraction

5. “Here are 9 blue counters.” (Cover.) “Here are 6 red counters.” (Cover.) “How many counters are there all together?”

If the student is unsuccessful on the first attempt show the whole task again.

If strategy is not obvious ask, “How did you figure that out?”

3	2	1
<b>Correct on first attempt:</b> Student may use a variety of strategies to solve this problem.	<b>Correct on second attempt:</b> A variety of strategies are acceptable.	<b>Unsuccessful:</b> Student is unable to accurately determine that the sum is 15.
Commentary: This problem is indicative of ability to operate off of a given value. The ability to solve this problem demonstrates a significant conceptual development and can be considered a milestone. Students who are unsuccessful with this task should be recommended for an Add+Vantage Math Addition & Subtraction assessment.		

6. Put out 14 counters of one color. (Cover.)

“Here are 14 counters.” Remove 3 counters and cover. “I’m taking away 3. How many counters are still under here?”

If the student is not successful on first attempt pose the question a second time.

3	2	1
<b>Correct on first attempt:</b> Student may use a variety of strategies to solve this problem.	<b>Correct on second attempt:</b> A variety of strategies are acceptable.	<b>Unsuccessful:</b> Student is unable to accurately determine that the sum is 15.
Commentary: Like the previous problem, the ability to solve this problem is indicative of ability to operate off of a given value and demonstrates a significant conceptual development and can be considered a milestone. Students who are unsuccessful with this task should be recommended for an Add+Vantage Math Addition & Subtraction assessment.		

## Structuring Number

7. “Tell me two numbers that go together to make 10.” (Prompt for addition.)

8. “Tell me another two numbers that go together to make 10.” (Prompt for addition.)

If the student says 10 and 0 do not score and ask for another combination.

3	2	1
<b>Correct and Automatic:</b> Fluent recall.	<b>Correct/Works out:</b> Student is able to produce combinations of ten, but significant think time is necessary, counting of fingers, or self-corrections all indicate a level 2 type response.	<b>Unsuccessful:</b> Student is unable to accurately provide a combination of two numbers that combine to make 10.
Commentary: Knowing combination of numbers that combine to make 10 is critical for the development of more sophisticated computational strategies. Students who score less than 3 on these two tasks should be recommended for AVMR Structuring Numbers Assessment.		

# Grade 2: Fall

## Place Value

9. "I have a strip of dots here. How many do you think there are?" If student doesn't know, take note and have the student count. Confirm that there are 10 dots. Slide them under a cover. "I put these 10 dots under here, and now I am going to add 6 more." Show the 6 dots. Slide them under the cover. "How many are under here now?"

Confirm that there are 16. (If student was unsuccessful, reveal all the dots and demonstrate a count like this. "There are 16. Look, 10 (gesturing to the strip of ten) 11, 12, 13, 14, 15, 16." (pointing to the six dots). Ten and six is sixteen." Cover again.

3	2	1
<b>Correct, no counting by ones:</b> To score a 3 on this task the student should respond 16.	<b>Correct-counts by ones:</b> The student counts by ones to solve either by counting from 1 or counting on from 10.	<b>Unsuccessful:</b> Student does not answer 16.
<p>Commentary: Place value as it relates to tens and ones is essential to the work of 2<sup>nd</sup> grade. It is critical that students who know that a ten and some more ones create teen numbers. This problem has close ties to the Structuring Number section above and should also be considered within that context. It could be also proposed that this question is similar enough to Addition &amp; Subtraction that it should be considered with those problems in mind.</p> <p>Many students who are unsuccessful with this task likely would have already been recommended for an AVMR assessment in one of the previous two sections.</p>		

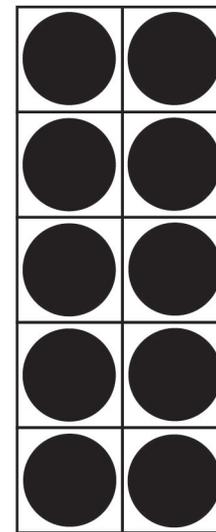
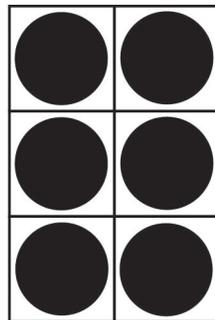
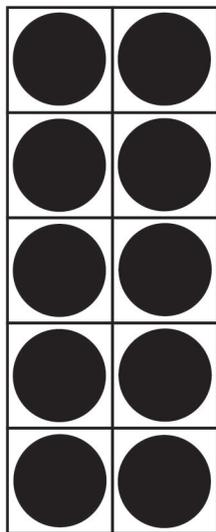
10. "There are 16 dots under here. I am going to put another strip of 10." Show the strip of 10 and slide it under with the 16. "How many are under here now?"

3	2	1
<b>Correct, w/o count by ones:</b> To score a 3 on this task the student should respond 26.	<b>Correct-counts by ones:</b> The student counts by ones to solve.	<b>Unsuccessful:</b> Student does not answer 26.
<p>Commentary: Place value as it relates to tens and ones is essential to the work of 2<sup>nd</sup> grade. It is critical that students can add tens to any number under 100. This problem, which is the most challenging task of the assessment is nevertheless indicative of an understanding of place value that is foundational to the work of the grade.</p> <p>If students are unsuccessful with this task, the AVMR Place Value assessment would reveal more about their understanding, but that assessment would not be recommended for students who were also unsuccessful with tasks #4 and #7 &amp; 8. For those students use the AVMR Addition and Subtraction assessment.</p>		



66 71 90 17

54



# Grade 3: Fall

## Number Sense Screener

Note Catcher, *print 1 copy/student*

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Teacher: \_\_\_\_\_

Language of Assessment:  English  Spanish  Other: \_\_\_\_\_

AVMR Assessment(s) Suggested?  No  Yes (see below)

Number Words and Numerals	score
<i>scoring: correct &amp; fluent: 3 pts, correct but uncertain: 2 pts, unsuccessful: 1 pt</i>	
1. "Start counting up from 496." (stop at 502). Notes:	
2. "Count backward from 303." (stop at 298) Notes:	
3. Numeral Identification: 106 ____ 212 ____ 577 ____ 1,000 ____ <input type="checkbox"/> correct and fluent: 3 pts <input type="checkbox"/> correct but uncertain: 2 pts <input type="checkbox"/> any unsuccessful: 1 pt Notes:	
AVMR Number Words and Numerals Assessment recommended? _____	
Multiplication and Division	score
<i>scoring: correct on the first attempt: 3 pts, correct on second attempt: 2 pts, unsuccessful: 1 pt</i>	
4. 12 counters into 4 equal groups. Notes:	
AVMR Multiplication and Division Assessment recommended? _____	
Place Value and Addition and Subtraction	score
5. Count back from 120 by 10s. <input type="checkbox"/> correct and fluent: 3 pts <input type="checkbox"/> correct but uncertain: 2 pts <input type="checkbox"/> incorrect: 1 pt Notes:	
6. $45 + 19$ <input type="checkbox"/> correct w/o counting by ones: 3 pts <input type="checkbox"/> correct: counts by ones: 2 pts <input type="checkbox"/> incorrect: 1 pt Notes:	
7. $50 - 24$ <input type="checkbox"/> correct w/o counting by ones: 3 pts <input type="checkbox"/> correct: counts by ones: 2 pts <input type="checkbox"/> incorrect: 1 pt Notes:	
8. Difference in two lines (64 and 58) <input type="checkbox"/> correct: 3 pts <input type="checkbox"/> attempts counting: 2 pts <input type="checkbox"/> doesn't see where the difference is found 1 pt Notes:	
AVMR Place Value and Addition and Subtraction Assessment recommended? _____	
Structuring Number	score
<i>scoring: correct and automatic: 3 pts, correct/works out: 2 pts, incorrect: 1 pt</i>	
9. ____ + ____ = 13 Notes:	
10. ____ + ____ = 13 Notes:	
AVMR Structuring Number recommended? _____	



# Grade 3: Fall

## Number Sense Screener

Script, print 1 copy/test administrator

### Number Words and Numerals

1. “Start counting at 496.” (stop at 502). Allow for 2 attempts if necessary.
2. “Count backward from 303.” (stop at 298) Allow for 2 attempts if necessary.
3. Numeral Identification Cards: 106, 212, 577, and 1,000.  
Lay the cards out one at a time and ask, “What number is this?”

### Multiplication and Division

4. Put out a collection of 12 counters for the student. “Here are some counters. Use these counters to make 4 equal groups.”

If the student is not correct on first attempt, ask the student to show you again.

\*See full detailed script for more prompt suggestions.

### Place Value and Addition and Subtraction

5. “Start at 120 and count back by tens.” (Allow student to count to zero)
6. Place the card  $45 + 19$  in front of the student. “Read this card.” Ensure the student reads it correctly and help them if necessary. “Work out the answer.”  
“How did you solve it?”  
(Optional: If the student duplicates a standard written algorithm ask, “Do you have another way to work it out?”)
7. Present the card  $50 - 24$ . “Read this card.” If the student is unable to read the card correctly, take note and support them in reading it. “How much is  $50 - 24$ ?” If student is unsuccessful, present the set of 50 dots. Present it as a full grid of 50 dots. “Here are 50 dots. See how there are 5 columns with 10 dots each.” Cover the grid and pull out the section of 24 dots. “I have taken 24 back out. How many are still under here?” Leave the 24 dots uncovered on the table.
8. Show the student the two number lines from the materials. “This top line measures 58 units long. The bottom one measures 64 units. How much longer is the bottom line than the top line?”

### Structuring Number

9. “Tell me two numbers that go together to make 13.” (Rephrase if necessary to ask for addition.) If student says  $13 + 0$  do not score and ask for another way to make 13.
10. “Tell me another two numbers that go together to make 13.”  
If student says  $13 + 0$  do not score and ask for another way to make 13.



# Grade 3: Fall

## Number Sense Screener

Spanish Script, *print 1 copy/test administrator*

### Number Words and Numerals

1. “Comienza a contar desde el 496.” (Stop at 502)
2. “Cuenta hacia atrás desde el 303.” (Stop at 298)
3. Numeral Identification Cards: 106, 212, 577, and 1,000.  
Lay the cards out one at a time and ask, “¿Cuál número es éste?”

### Multiplication and Division

4. Put out a collection of 12 counters for the student. “Aquí hay algunas fichas. Usa estas fichas para hacer 4 grupos iguales.”  
If the student is not correct on first attempt, ask the student to show you again.  
\*See full detailed script for more prompt suggestions.

### Place Value and Addition and Subtraction

5. “Comenzando desde e120 cuenta hacia atrás de diez en diez.”  
(Allow student to count to zero.)
6. Place the card  $45 + 19$  in front of the student. “Lee esta tarjeta.” Ensure the student reads it correctly and help them if necessary. “Calcula la respuesta.”  
“¿Cómo lo resolviste?”  
(Optional: If the student duplicates a standard written algorithm ask, “¿Tienes otra manera para resolverlo?”)
7. Present the card  $50 - 24$ . “Lee esta tarjeta If the student is unable to read the card correctly, take note and support them in reading it. “Calcula la respuesta.” If student is unsuccessful, present the set of 50 dots. Present it as a full grid of 50 dots. “Aquí hay 50 puntos. Mira como hay 5 columnas con 10 puntos cada una.” Cover the grid and pull out the section of 24 dots. “Le quite 24. ¿Cuántos quedan aquí debajo?” Leave the 24 dots uncovered on the table.
8. Show the student the two number lines from the materials. “La primera línea mide 58 unidades de largo. La de abajo mide 64 unidades. ¿Qué tanto más larga es la línea de abajo que la primera línea?”

### Structuring Number

9. “Dime dos números que juntos sumen 13.” (Rephrase if necessary, to ask for addition.) If student says  $13 + 0$  do not score and ask for another way to make 13.
10. “Dime otros dos números que juntos sumen 13.”



# Grade 3: Fall

## Administration Guide

Scoring Guide, *print 1 copy/test administrator*

1. **“Start counting at 496”** (stop at 502). If the student makes an error on the first attempt that you think might be corrected with a second attempt, say, **“OK. Let me hear that one more time.”** If time allows, have the student to continue counting (e.g. to 512).

3	2	1
<b>Correct and fluent:</b> Student counts accurately and with confidence.	<b>Uncertain but correct:</b> Student is able to complete the count, but might need to pause to think, make self-corrections, express uncertainty, or need a second attempt.	<b>Incorrect:</b> Student is unable to successfully complete the count.
<p><b>Commentary:</b> Counting in the higher ranges reveals an understanding of the number system more than an ability to <i>memorize</i> the sequence. Although this question is in the section of Number Words and Numerals, this question also reveals practical understanding of place value. For students who score at a level one, further assessments should be done. A quick second step would be to ask the student to count from 98 - 112.</p> <p>For students who are unsuccessful with this task, consider using the Add+Vantage Math Recovery Number Words and Numerals assessment.</p>		

2. **“Count backward from 303”** (stop at 298) If the student makes an error on the first attempt that might be corrected with a second attempt, ask the student to start again.

3	2	1
<b>Correct and fluent:</b> Student counts accurately and with confidence. Pauses for thinking are OK.	<b>Correct but uncertain:</b> Student is able to complete the count, but might need to pause to think, make self-corrections, express uncertainty, or need a second attempt.	<b>Incorrect:</b> Student is unable to successfully complete the count.
<p>As with counting forward, counting back is a skill that reveals understanding of the number system more than an ability to <i>memorize</i> a sequence of numbers. Because counting backward is significantly harder than counting forward allow for think time as necessary.</p> <p>Students who are not successful with this task should be recommended for the Add+Vantage Math Recovery Number Words and Numerals assessment. For a quick follow up with students who are unsuccessful ask for a count down from 102 - 98.</p>		



# Grade 3: Fall

3. Numeral Identification Cards. “Read this number for me.” 106      212      577      1,000  
 If student makes a mistake you may present the card again.

3	2	1
<b>Correct and fluent:</b> Student reads all of the numbers correctly and confidently.	<b>All correct, but any uncertain:</b> Student is accurate, but uncertain in the reading of the numbers or needs a second attempt with any of the numbers.	<b>Any Incorrect:</b> Student reads any of the numbers incorrectly.
<p><b>Commentary:</b> A student’s ability to accurately and fluently read and talk about numbers is fundamental if they are to engage in mathematical discourse. This skill is often under assessed, in that the ability to read numbers, especially for students who are emerging bilinguals and students who struggle with reading, needs to be assessed and taught in small groups or one-on-one. For students who are being assessed in a language other than the language of instruction, consider also assessing this skill in the language of instruction. The ability to read numbers in one language does not automatically “transfer” to a second language, but often needs to be “translated” in the mind of the person. Developing fluency in the language of instruction supports engagement. For students who score at a level 1 on this task the Add+Vantage Math Number Words &amp; Numerals assessment is recommended.</p>		

4. Put out a collection of 12 counters (all the same color) for the student. “Here are some counters. Use these to make 4 equal groups.” If the student is not successful on the first attempt as the student to show you again.

This question includes some linguistic complexity. In assessing the ability of a student to form equal sized groups, teachers should recognize that this concept itself lies at an intersection of mathematical understanding and language. When a student is unsuccessful on the first attempt, provide additional prompting to help the student understand the task. However as you do, keep in mind that significant prompting is what helps you to identify a level 2 response. For example, “Did you make 4 groups?” “How many groups did you make?” “Are your groups all the same?”

3	2	1
<b>Correct on first attempt:</b> Student makes 4 groups initially with 3 in each group without the need for additional prompting.	<b>Correct on second attempt:</b> Student did not initially make 4 groups with 3 in each, and needed some additional prompting to be able to understand the task.	<b>Incorrect:</b> Student does not create 4 groups with 3 in each group even with additional prompting.
<p><b>Commentary:</b> The ability to share a set of objects among several groups is a critical foundational skill for understanding and formalizing an understanding of multiplication and division. The ability to understand the language of this is also critical, for understanding instruction (receptively) as well as the ability to engage in mathematical discussions in the class. Much can be learned about student thinking from this task. Many students will make 3 groups with 4 in each group. Ask the student to “count the groups,” and they will often recount the number of objects in each group. Ask the student, “How many groups did you make?” and this can lead to some important cognitive dissonance. If the student says three, repose the task to see if they are successful on a second attempt. <i>(continued)</i></p>		



# Grade 3: Fall

## Task #4 Commentary Continued:

For students who perform at a level 1 it can sometimes be helpful to draw 4 circles and ask them if they can make 4 groups with the same amount in each group. Although the ability to do this with this significant scaffold still remains a score of 1, it can illustrate the starting point for that student in terms of their understanding of creating equal groups.

Students who score at a Level 1 on this task should be further assessed using the Add+Vantage Math Multiplication & Division assessment.

5. **“Start at 120 and count back by tens.”** (allow student to count to zero). If student makes slight mistakes on first attempt, say, **“OK. Can I hear that one more time?”**

3	2	1
<b>Correct and fluent:</b> Student accurately counts back by tens from 120 with very few or no pauses” without undue pauses and with reasonable confidence.	<b>Correct but uncertain:</b> Student is able to complete the count, but with pauses for thinking and/or self-corrections. Or student is able to correctly complete the count on a second attempt.	<b>Unsuccessful:</b> Student does not correctly complete the count.
<p><b>Commentary:</b> This task is designed to help teachers understand a student’s understanding of the relationship between 10s and 100s and to reveal the student’s verbal sequence. For students who are unable to complete the count, note the kinds of mistakes that the student makes in order to inform next steps for instruction. This foundational number sense indicator supports an understanding of place value especially as it relates to subtraction.</p> <p>Consider the results of this task in combination with the remainder of the tasks in this section to determine if an AVMR Place Value Assessment would be productive.</p>		

6. Place the card  $45 + 19$  in front of the student. **“Read this card.”** Ensure the student reads it correctly and help them if necessary (take note of any difficulties with reading the card.) **“Work out the answer.”** If the strategy that the student used was not obvious, or if the student answers incorrectly, ask, **“How did you solve it?”** (Optional: If the student duplicates a written algorithm ask, **“Do you have another way to work it out?”**)

3	2	1
<b>Correct w/o counting by 1s:</b> Student is able to solve the task without needing to count by ones. If a student uses a traditional algorithm, the student does not count by 1s to solve $5 + 9$ .	<b>Correct - Counts by ones, or self corrects when explaining strategy:</b> Student counts by ones. This can either sound like a long count on from 45 (e.g. 45, 46, 47 etc.) or if a traditional algorithm is being used, “9, 10, 11, 12, 13, 14...put the 4 down, carry the one.” <u>Or</u> If the student answers incorrectly, but then corrects their answer when explaining a strategy.	<b>Incorrect:</b> Student is unable to produce a correct answer of 64.

# Grade 3: Fall

## Task #6 Commentary:

This task seeks to elicit thinking as it relates to 10s and 1s. Students who have a solid understanding of place value might use a variety of strategies: Add tens, then ones:  $40 + 10$  is 50,  $50 + 9$  is 59 and  $59 + 5$  is 64. If a student uses this kind of strategy, score as a 3 even if the student counts by ones to add  $59 + 5$ . The key to notice students manipulating the 10s as units. This is why it is critical to question a student who uses the traditional algorithm with the goal of determining whether a student truly understands place value as it relates to addition.

For students who score at a level 1 on this task, using an Add+Vantage Math Recovery: Place Value assessment is recommended.

7. Present the card  $50 - 24$ . **“Read this card.”** If the student is unable to read the card correctly, take note and support them in reading it. **“How much is  $50 - 24$ ?”** If student is unsuccessful, present the set of 50 dots. Present it as a full grid of 50 dots. **“Here are 50 dots. See how there are 5 columns with 10 dots each.”** Cover the grid and pull out the section of 24 dots. **“I have taken 24 back out. How many are still under here?”** Leave the 24 dots uncovered on the table.

3	2	1
<b>Correct w/o counting by 1s:</b> Student is able to solve the task on first attempt without the visual scaffold. Although counting back by 1s is less than optimal and should be noted, score a 3 if the student counts back by 1s without the scaffold.	<b>Correct when presented with the visual scaffold:</b> When a student correctly solves the problem after presented with the scaffold, score as a 2 regardless of the strategy (take note of how they solved it.)	<b>Incorrect:</b> Student is unable to produce a correct answer of 26.

**Commentary:** This task can be solved in many ways. Subtraction is a difficult topic for many students, especially when regrouping is involved. Often the visual scaffold will prompt thinking that was not available to the student when the task is presented numerically. Ideally, students will use a strategy of counting back by tens, or perhaps they will use  $50 - 25$  as a known fact to work from. Note the students who are able to have success when the task is supported by the visual model.

For students who score at a level 1 on this task, using an Add+Vantage Math Recovery: Place Value assessment is recommended.

# Grade 3: Fall

8. Show the two number lines from the materials. “This top line measures 58 units long. The bottom one measures 64 units. How much longer is the bottom line than the top?”

3	2	1
<b>Correct:</b> Student recognizes the difference is 6. Student can use a variety of methods. Count by 1s is ok.	<b>Student attempts to find the difference, but doesn’t attend to the numbers:</b> Some students will attempt to count intervals between the two bars, without attending to the units. That is, they recognize where the difference would be found, but don’t attend to the numbers. <u>Or</u> Student attempts to use the numbers to find the difference, but calculates incorrectly.	<b>Student does not see the difference as the space between:</b> This can look a lot of ways, but what is critical is that the student at a level 1 are not yet seeing that the difference is a mathematical relationship between the two lengths.
<b>Commentary:</b> Understanding “difference” as it relates to subtraction represents a developmental milestone for students. Seeing the space between can be challenging for many students. For students who are still developing this understanding, it is important to consider the appropriate scaffolds and supports necessary when difference problems are presented in the instructional program.		

9. “Tell me two numbers that go together to make 13.” (rephrase as necessary to ensure that the student understands that you are asking for two numbers, that when added together make 13.) If your instructional program uses a specific term (e.g. a number bond) for these basic combinations, consider using that in your prompt.

10. “Tell me another two numbers that go together to make 13.”

**Score 9 and 10 separately using this guide:**

3	2	1
<b>Correct/fluent:</b> The student demonstrates ready access to combinations of numbers that add to 13.	<b>Correct/works out:</b> Student is able to find numbers that combine to make 13, but is able to with some think time or by using fingers or a counting method.	<b>Incorrect:</b> Student does not accurately identify numbers that add to 13
<b>Commentary:</b> Fluency with addition and subtraction through 20 is an expectation for the end of 2nd grade. However, “fluency” is a process that goes on for many years. Students who are more successful with fluency tasks show more success overall in mathematics, and tend to enjoy it more since basic computations become less of a burden. As students grow in their familiarity with basic facts, the energy necessary for using them decreases, allowing students to focus on other, more complex ideas of third grade math. As the 3rd grade curriculum turns to focus on multiplication and division, look for opportunities to continue working on fluency with addition and subtraction. For students who are not fully successful on these tasks use the Add+Vantage Math Recovery (AVMR) Structuring Number assessment.		



577

496

1,000

303

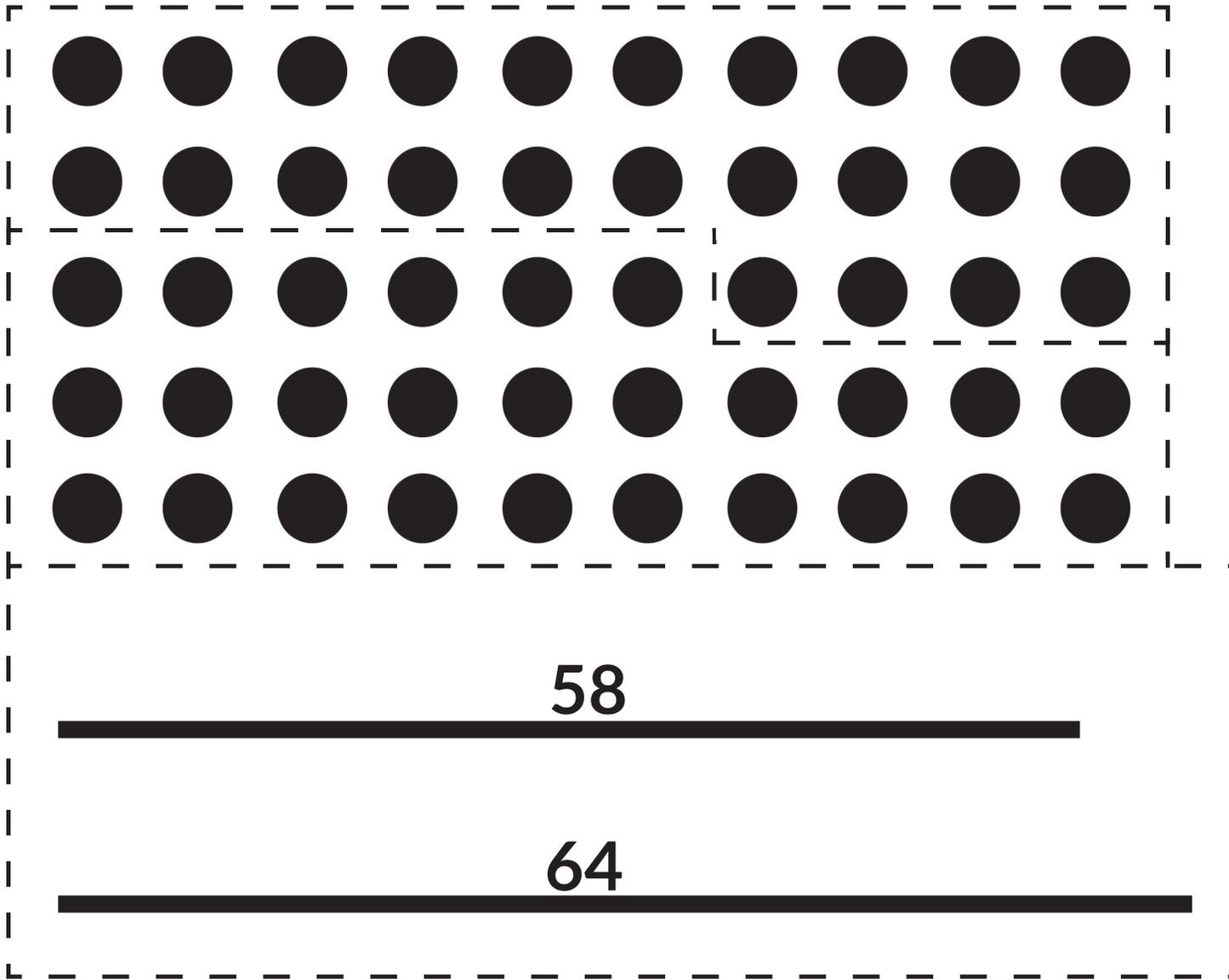
$45 + 19$

106

50 - 24

212





# Grade 4: Fall

## Number Sense Screener

Note Catcher, *print 1 copy/student*

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Teacher: \_\_\_\_\_

Language of Assessment:  English  Spanish  Other: \_\_\_\_\_

AVMR Assessment(s) Suggested?  No  Yes (see below)

Number Words and Numerals	score
<i>scoring: correct &amp; fluent: 3 pts., correct but uncertain: 2 pts., unsuccessful: 1 pt.</i>	
<b>1. Count from 995.</b> (stop at 1000) <i>Notes:</i>	
<b>2. Count back from 602.</b> (stop at 597) <i>Notes:</i>	
<b>3. Numeral Identification:</b> 628 _____ 402 _____ 555 _____ 1,000 _____ $\frac{1}{3}$ _____ <input type="checkbox"/> <i>correct and fluent: 3 pts</i> <input type="checkbox"/> <i>correct but uncertain: 2 pts</i> <input type="checkbox"/> <i>any unsuccessful: 1 pt</i> <i>Notes:</i>	
AVMR Number Words and Numerals Assessment recommended? _____	
Multiplication and Division	score
<b>4. 6 cards with 3 dots each</b> <input type="checkbox"/> <i>correct: multiplies or counts by 3s: 3 pts</i> <input type="checkbox"/> <i>correct on 2<sup>nd</sup> try, or counts by 1s: 2 pts</i> <input type="checkbox"/> <i>incorrect: 1 pt</i> <i>Notes:</i>	
<b>5. Equation to match cards</b> <input type="checkbox"/> <i>multiplication equation 3 pts</i> <input type="checkbox"/> <i>addition equation: 2 pts</i> <input type="checkbox"/> <i>unsuccessful: 1 pt</i> <i>Notes:</i>	
AVMR Multiplication and Division Assessment recommended? _____	
Place Value	score
<b>6. 82 pencils into boxes of 10</b> <input type="checkbox"/> <i>correct: 3 pts</i> <input type="checkbox"/> <i>self-corrects when explaining: 2 pts</i> <input type="checkbox"/> <i>incorrect: 1 pt</i> <i>Notes:</i>	
<b>7. 596 + 10</b> <input type="checkbox"/> <i>correct: not count by 1s: 3 pts</i> <input type="checkbox"/> <i>self-corrects on explaining, cnts by 1s: 2 pts</i> <input type="checkbox"/> <i>incorrect: 1 pt</i> <i>Notes:</i>	
<b>8. 400 – 198 (follow with 400 – 102 if necessary)</b> <input type="checkbox"/> <i>solves 400-198</i> <input type="checkbox"/> <i>solves 400-102: 2 pts</i> <input type="checkbox"/> <i>incorrect: 1 pt</i> <i>Notes:</i>	
AVMR Place Value Assessment recommended? _____	
Fractions	score
<b>9. <math>\frac{1}{3}</math> and <math>\frac{2}{3}</math> on the number line.</b> <input type="checkbox"/> <i>both accurate: 3 pts</i> <input type="checkbox"/> <i>both between 0-1: 2 pts</i> <input type="checkbox"/> <i>out of order or not between 0 and: 1 pt</i> <i>Notes:</i>	
AVMR Fractions Assessment recommended? _____	



# Grade 4: Fall

## Number Sense Screener

Script, *print 1 copy/test administrator*

### Number Words and Numerals

1. "Start counting from 995 and I will tell you when to stop." (Stop at 1000)
2. "Count backward from 602. I'll tell you when to stop." (Stop at 597)
3. Numeral Identification Cards: 628, 402, 555, 1,000,  $\frac{1}{3}$   
Lay the cards out one at a time and ask, "What number is this?"

### Multiplication and Division

4. Place out 6 cards with dots face down without allowing the student to see the dots.  
"I have 6 cards. Each card has three dots on it. How many dots are there all together?"
5. "Write an equation to go with the dots on the cards." (Give pencil and have them write the equation on the back of the note catcher.) If student writes an addition sentence, ask them to write a multiplication sentence. If student is incorrect in #4, but uses the same numbers in equation, count this item as correct.

### Place Value

6. Show the student the picture of the pencil boxes. "I have 82 pencils that need to be packed into boxes with ten pencils in each box. How many boxes can I fill with 10 pencils each?"
7. Show the card  $596 \div 10$ . "Read this card." (Ensure that the student reads the card correctly. Correct them if necessary.) "Work out the problem."  
"How did you solve it?" If the student duplicates the standard written algorithm, ask if they have another way of solving it.
8. Place the card  $400 - 198$  in front of the student. "Read this card." Ensure that the student reads the card correctly. Correct them if necessary. "Work out the problem." If it is not obvious, ask "How did you solve it?" regardless of whether they have given the correct answer (202) or not.  
If the student is unable to solve  $400 - 198$ , remove the  $400 - 198$  present the second card for this task:  $400 - 102$ . "Read this card." (Ensure that the student reads the card correctly. Correct them if necessary.)

### Fractions

9. Give the student the number line. "This line shows a racecourse. The runner starts here at zero and runs to the end, where it says 2. Two stands for 2 miles. Where will the runner be after they run  $\frac{1}{3}$  mile?" Put the card that says  $\frac{1}{3}$  on the table. Put a mark  $\frac{1}{3}$  mile from the start and label it  $\frac{1}{3}$ .  
Lay the card that says  $\frac{2}{3}$  on the table. "Where is  $\frac{2}{3}$  mile on this racecourse? Put a mark  $\frac{2}{3}$  mile from the start and label it  $\frac{2}{3}$ ."



# Grade 4: Fall

## Number Sense Screener

Spanish Script, *print 1 copy/test administrator*

### Number Words and Numerals

1. “Comienza a contar desde el 995 y yo te diré cuándo parar.” (Stop at 1000)
2. “Cuenta hacia atrás desde el 602 y yo te diré cuándo parar.” (Stop at 597)
3. Numeral Identification Cards: 628, 402, 555, 1,000,  $\frac{1}{3}$

Lay the cards out one at a time and ask, “¿Cuál número es éste?”

### Multiplication and Division

4. Place out 6 cards with dots face down without allowing the student to see the dots. “Tengo 6 tarjetas. Cada tarjeta tiene tres puntos. ¿Cuántos puntos hay en total?”
5. “Escribe una oración numérica que vaya con los puntos en las tarjetas.” (Give pencil and have them write the equation on the back of the note catcher) If student writes an addition sentence, ask them to write a multiplication sentence. If student is incorrect in #4, but uses the same numbers in equation, count this item as correct.

### Place Value

6. Show the student the picture of the pencil boxes. “Tengo 82 lápices que deben ser empaquetados en cajas con diez lápices en cada caja. ¿Cuántas cajas puedo llenar con 10 lápices en cada una?”
7. Show the card  $596 + 10$ . “Lee esta tarjeta.” (Ensure that the student reads the card correctly. Correct them if necessary.) “Resuelve el problema.” “¿Cómo lo resolviste?” If the student duplicates the standard written algorithm, ask if they have another way of solving it.
8. Place the card  $400 - 198$  in front of the student. “Lee esta tarjeta.” Ensure that the student reads the card correctly. Correct them if necessary. “Resuelve el problema.” If it is not obvious, ask “¿Cómo lo resolviste?” regardless of whether they have given the correct answer (202) or not.

If the student is unable to solve  $400 - 198$ , remove the  $400 - 198$  present the second card for this task:  $400 - 102$ . “Lee esta tarjeta.” (Ensure that the student reads the card correctly. Correct them if necessary.)

### Fractions

9. Give the student the number line. “Esta línea muestra una carrera. El corredor empieza aquí en cero y corre hasta el final, donde dice 2. Ese dos significa 2 millas. ¿Dónde estaría el corredor después de correr  $\frac{1}{3}$  de milla? Put the card that says  $\frac{1}{3}$  on the table. Pon una marca en donde va  $\frac{1}{3}$  de milla y escribe  $\frac{1}{3}$ .”

Lay the card that says  $\frac{2}{3}$  on the table. ¿Dónde está la milla  $\frac{2}{3}$  en esta línea? Pon una marca en la milla  $\frac{2}{3}$  desde el inicio y escribe  $\frac{2}{3}$ .”



# Grade 4: Fall

## Administration Guide

Scoring Guide, *print 1 copy/test administrator*

### Number Words and Numerals

1. “Start counting from 995 and I will tell you when to stop.” Lay the card that says 995 on the table. Stop at 1000. If the student finishes the count saying either one thousand or million have the student write the number on the back of the notetaker. If student does not count to a thousand or “million” score as unsuccessful.

3	2	1
<p><b>Correct and fluent:</b> Student demonstrates an ability to count to 1,000 and writes the number correctly.</p>	<p><b>Correct, but uncertain:</b> Student is not fluent in their count to one thousand, but writes 1,000 correctly.  <u>Or</u>            Student is fluent in their count, but is unable to write 1,000 correctly.  <u>Or</u>            Student says “million” instead of “thousand,” but writes the number correctly.</p>	<p><b>Unsuccessful:</b> Student is unable to count from 995 to 1,000.  <u>Or</u>            Student ends count saying “million” and is unable to accurately write 1,000</p>
<p><b>Commentary:</b> This task is a progression of counting tasks that start in kindergarten. For students who are unsuccessful, as time allows, consider a lower count to determine at what level the student is competent in their counting abilities. For students who say “a million” at the end of this count, this may be more of a language issue than an understanding of the number system, thus the writing of the number has been added to this task to help understand the student’s thinking. This confusion is not uncommon for bilingual students who speak Spanish or French whose words for one thousand are <i>mil</i> and <i>mille</i>. Historically, the Forefront Global Cohort, has shown that nearly 35% of incoming 4th grade students score at a level 1 on this task. Teachers should be prepared with ideas for providing targeted instruction for those students who are still developing this fundamental skillset. For students who are not successful on this task the Add+Vantage Math Recovery (AVMR) Number Words and Numerals assessment is recommended.</p>		

2. “Count backward from six hundred two and I will tell you when to stop.” Lay the card that says 602 on the table. (Stop at 597.)

3	2	1
<p><b>Correct and fluent:</b> Student demonstrates an ability to accurately make this count with reasonable confidence</p>	<p><b>Correct but uncertain:</b> Student is able to accurately complete the count, but with longer pauses, self-corrections, or multiple attempts.</p>	<p><b>Unsuccessful:</b> Student is unable to accurately complete the count.</p>
<p><b>Commentary:</b> This continues counting back tasks from previous years’ Screeners. This task is as much a place value task as it is a test of the understanding of the number word sequence. It is not unusual to find 4th grade students who are unsuccessful with this task. Historically, in the Forefront Global Cohort, nearly 25% of incoming 4th grade students scored at a level 1 on this task. Teachers should be prepared with ideas for providing targeted instruction for those students who are still developing this fundamental skillset. For students who are not successful on this task the Add+Vantage Math Recovery (AVMR) Number Words and Numerals assessment is recommended.</p>		



# Grade 4: Fall

3. Numeral Identification: 628 402 555 1,000  $\frac{1}{3}$

Lay the cards out one at a time and ask, "What number is this?"

3	2	1
<b>Correct and Fluent:</b> Student shows an ability to read these numbers without difficulty.	<b>Correct but uncertain:</b> Student shows some uncertainty with reading these numbers.	<b>Unsuccessful:</b> Student is unable to read any of the numbers.
<p><b>Commentary:</b> The ability to read numbers is a question of access to instruction, and necessary for engaging in mathematical discourse. Students who score either 2 or 1 on this task due to issues with reading the whole numbers should be recommended for the Add+Vantage Math Recovery Number Words and Numerals assessment.</p>		

## Multiplication and Division

4. Place the 6 cards with the dots face down, without allowing the student to see the dots. Say, "I have 6 cards. Each has 3 dots on it. How many dots are there altogether?"

If student is unsuccessful, show the 3 dots from one of the cards quickly to the student. "See, each card has 3 dots. Each card is the same. How many dots are there altogether?"

If the student attempts to use a memorized fact, but gives a wrong answer, (e.g. Student says, "It's 16. Because 3 times 6 is 16.") Say, "How can you show me that is true?"

3	2	1
<b>Correct, multiplies or counts by 3s:</b> Student solves correctly on first attempt and does not count by 1s.	<b>Correct on 2nd attempt or counts by 1s:</b> This includes students who attempt to solve with a memorized fact, but are incorrect in their answer, but correct themselves when asked to solve it another way.	<b>Unsuccessful:</b> Student loses count, or whatever, but does not give the answer 18.
<p><b>Commentary:</b> This task is intended to assess the students' ability to repeat equal groups of numbers. (units of 3 in this case). This is fundamental for multiplicative thinking.</p> <p>Students who score at a level 1 or 2 on this task should be considered for an Add+Vantage Math Recovery Multiplication &amp; Division assessment.</p>		

# Grade 4: Fall

5. Do not remove the cards from the previous task. Do not tell the student the correct answer to the previous question. Say, “**Write an equation to go with the dots on the cards.**” (Give the student a pencil and have them write the equation on the back of the note catcher.)

Occasionally, students will need some additional prompting to understand the task. If so, say “Write an equals sign. You said the answer was \_\_\_\_, so \_\_\_\_ = \_\_\_\_ is the start. How would you finish it?”

If the student writes an addition equation (e.g.  $3+3+3+3+3+3=18$ ) say, “**Good, can you also write a multiplication equation that matches?**”

3	2	1
<p><b>Multiplication equation:</b> Student writes a multiplication equation that matches the situation. * If the student had the fact incorrect in question 4 and their equation here matches that, count as a 3 here.</p>	<p><b>Correct repeated addition equation:</b> Student makes repeated addition equation that matches the cards. This could be <math>3+3+3+3+3+3</math>, but also accept <math>6+6+6</math> (or less commonly <math>9+9</math>), if they can show you where the 6s (or 9s) are. <u>and</u> Student is unable to write matching multiplication equation</p> <p>For other addition equations that do not show repeated addition (e.g. <math>12+9</math>) score as a 1.</p>	<p><b>Incorrect:</b> Student is unable to create either a multiplication or repeated addition problem that matches the situation presented on the cards.</p>

**Commentary:** An understanding of how multiplication is used to represent multiplicative situations is foundational for working with multiplication and division in 4th grade. Helping students who are still thinking additively, or who are unable to use an equation to mathematically model the situation (see [SMP4](#)) need experiences to help them associate repeated groups with the idea of multiplication.

## Place Value

6. Show the student the picture of the pencil boxes. “**I have 82 pencils that need to be packed into boxes with ten pencils in each box. How many boxes can I fill with 10 pencils each?**” If the student does not answer correctly, ask them to explain their thinking.

3	2	1
<p><b>Correct:</b> Student answers 8 (some might account for the remainders. Take note, but this does not impact the scoring.) If student answers 8 ask them to explain to check to see if one box will be less than full.</p>	<p><b>Self-corrects when explaining:</b> Student confused on the first attempt then self-corrects when thinking it through aloud.</p>	<p><b>Incorrect:</b> Student is unable to see that 8 boxes are necessary.</p>

**Commentary:** This contextualized problem, which is a place value problem in its essence helps to reveal readiness for 4th grade work with division. This question was modified in this version from a problem presented this problem with 132 pencils. Historically fewer than 50% of students were able to solve that problem correctly. For the teacher, it might be helpful to ask the problem using 132 pencils as a follow up to the question with the 82 pencils. For students who are unsuccessful with this task an Add+Vantage Math Recovery (AVMR) Place Value assessment would be recommended.



# Grade 4: Fall

7. Show the card  $596 + 10$ . **“Read this card.”** (Ensure that the student reads the card correctly. Help them if necessary.) **“Work out the problem.”** If it is not obvious, ask, **“How did you solve it?”** If student uses a traditional algorithm, ask if they have another way to solve the problem and/or ask them to explain their thinking to determine if they are simply following the procedure, or if they understand the place value.

3	2	1
<p><b>Correct without counting by 1s:</b> The student is able to explain how to solve this problem without resorting to counting by ones. If the student has used a traditional algorithm, only score as a 3 if they can explain why that method works using an explanation that uses the words: ten(s) and hundred(s).</p>	<p><b>Correct, counts by ones or uses a traditional algorithm w/o being about to clearly explain the place value:</b>            Student solves by counting on by 1s, or the student applies the traditional algorithm, but is unable to provide an explanation that talks about 10s and 100s.  <u>Or</u>            Student corrects their answer when explaining, or on 2nd attempt.</p>	<p><b>Incorrect:</b> Student does not answer 606.</p>
<p><b>Commentary:</b> It is an expectation of 2nd and 3rd grade that students will develop a conceptual understanding of place value that will be applied in 4th grade to develop fluency with multi-digit addition and subtraction. This task is designed to elicit thinking related to place value as it relates to tens and hundreds. For students who have already learned to apply a standard algorithm, it is important that they have a conceptual understanding of place value before moving to the formalization of the procedure that will happen in 4th grade.</p>		

8. Place the card 400-198 in front of the student. **“Read this card.”** Ensure that the student reads the card correctly. Correct them if necessary. **“Work out the problem.”** If it is not obvious, ask **“How did you solve it?”** regardless of whether they have given the correct answer (202) or not. If the student is unable to solve 400 - 198, remove the 400 - 198 present the second card for this task: 400 - 102. **“Read this card.”** (Ensure that the student reads the card correctly. Correct them if necessary.)

3	2	1
<p><b>Student solves 400-198 either on 1st attempt or when explaining their thinking:</b> The student is able to determine that the correct answer is 202.</p>	<p><b>Student solves 400-102:</b> Although the student was unable to solve the task 400 - 198, when presented with the second task they accurately answer 298.</p>	<p><b>Student is unable to solve either task.</b></p>
<p><b>Commentary:</b> This task has been modified from the prior version to include a second problem that is slightly easier in order to get a fuller understanding of the students’ thinking. Consider, if time allows, asking students who score at a level 1 to solve the problem 102 - 3 to determine the student’s level of understanding at this point in time. The ability to apply place value understanding to be able to subtract is critical for students. This fundamental skill/concept is critical for division, and for students who are struggling with subtraction at the beginning of 4th grade place value should quickly become a focus of targeted supports and progress should be monitored. For students who score a 1 on this task, an AVMR Place Value assessment would be advisable.</p>		



# Grade 4: Fall

## Fractions

9. Give the student the number line. “This line shows a racecourse. The runner starts here at zero and runs to the end, where it says 2. Two stands for 2 miles. Where will the runner be after they run  $\frac{1}{3}$  mile?” Put the card that says  $\frac{1}{3}$  on the table. Put a mark  $\frac{1}{3}$  mile from the start and label it  $\frac{1}{3}$ .”

Lay the card that says  $\frac{2}{3}$  on the table. “Where is  $\frac{2}{3}$  mile on this racecourse? Put a mark  $\frac{2}{3}$  mile from the start and label it  $\frac{2}{3}$ .”

3	2	1
<b>Accurately places both:</b> Student pays attention to dividing space between 0 and 1 into thirds to place the fractions.	<b>Places both between 0 and 1:</b> Student places both fractions between 0 and 1, but does not attend to equal thirds. $\frac{2}{3}$ is placed to the right of $\frac{1}{3}$ .	<b>Not between 0 and 1 or out of order:</b> Student doesn't place the fractions between 0 and 1.
<b>Commentary:</b> The previous version of this assessment did not have the context, and fewer than 20% of students in the Forefront Global Cohort scored at a level 3 on this task. With the context we anticipate that more students will be able to demonstrate a better understanding of fractions, in order to better identify productive supports and starting points for instruction.  Nevertheless, the ability to place fractions on number lines that extend beyond 1 is a critical task and students are expected to do so without a context by the end of 3 <sup>rd</sup> grade. Students in 3 <sup>rd</sup> and 4 <sup>th</sup> grades should have multiple opportunities to work with fractions on number lines to prepare them for more complex fraction concepts and rational number topics in 5 <sup>th</sup> grade and beyond.		

555 995

1,000 602

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● ● ●  
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628

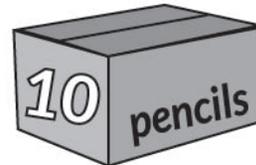
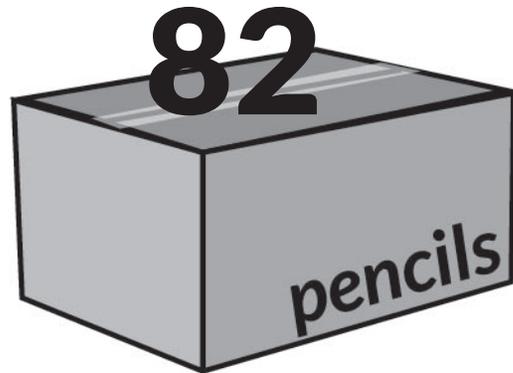
● ● ●  
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402



$3 \frac{2}{3}$

$596 + 10$



$400 - 198$

$400 - 102$

$3 \frac{1}{3}$

*Use above for numeral identification and fractions sections.*





Handwriting practice area with six rows of dashed lines. Each row contains a vertical line with three dots. The dots are labeled '0', '1', and '2' from bottom to top. The word 'START' is written vertically to the left of the bottom dot, and 'FINISH' is written vertically to the right of the top dot.

# Grade 5: Fall

## Number Sense Screener

Note Catcher, *print 1 copy/student*

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Teacher: \_\_\_\_\_

Language of Assessment:  English  Spanish  Other: \_\_\_\_\_

AVMR Assessment(s) Suggested?  No  Yes (see below)

Number Words and Numerals	score
<p>1. "Count back from 1002." (stop at 998)</p> <p><input type="checkbox"/> correct and fluent: 3 pts      <input type="checkbox"/> correct but not fluent: 2 pts      <input type="checkbox"/> unsuccessful: 1 pt</p> <p>Notes:</p>	
<p>2. Numeral Identification Cards</p> <p>Indicate if response is immediate (✓), delayed (d), or incorrect (x)</p> <p>90,540 _____ <math>\frac{3}{5}</math> _____ 40,008 _____ <math>1\frac{1}{2}</math> _____</p> <p><input type="checkbox"/> all correct/fluent: 3 pts      <input type="checkbox"/> all correct, but not confident: 2 pts      <input type="checkbox"/> any incorrect: 1 pt</p> <p>Notes:</p>	
AVMR Number Words and Numerals Assessment recommended? _____	
Multiplication and Division	score
<p>3. <math>6 \times 4</math> with array</p> <p><input type="checkbox"/> correct and automatic: 3 pts      <input type="checkbox"/> correct /works out: 2 pts      <input type="checkbox"/> incorrect: 1 pt</p> <p>Notes:</p>	
<p>4. <math>32 \div 4</math> with array</p> <p><input type="checkbox"/> correct and automatic: 3 pts      <input type="checkbox"/> correct /works out: 2 pts      <input type="checkbox"/> incorrect: 1 pt</p> <p>Notes:</p>	
<p>5. <math>30 \times 4</math></p> <p><input type="checkbox"/> correct: 3 pts      <input type="checkbox"/> incorrect, but good strategy: 2 pts      <input type="checkbox"/> incorrect no viable strategy: 1 pt</p> <p>Notes:</p>	
<p>6. <math>29 \times 4</math></p> <p><input type="checkbox"/> subtracts 4 from 120: 3 pts      <input type="checkbox"/> correct/solves separately: 2pts      <input type="checkbox"/> incorrect: 1 pt</p> <p>Notes:</p>	
AVMR Multiplication and Division Assessment recommended? _____	
Place Value	score
<p>7. Groups of 10 in 214</p> <p><input type="checkbox"/> correct 1st attempt: 3 pts      <input type="checkbox"/> self-corrects when explaining: 2 pts      <input type="checkbox"/> incorrect: 1 pt</p> <p>Notes:</p>	
<p>8. \$20.00 - \$12.25</p> <p><input type="checkbox"/> correct: 3 pts      <input type="checkbox"/> self-corrects when explaining thinking: 2 pts      <input type="checkbox"/> incorrect: 1 pt</p> <p>Notes:</p>	
AVMR Place Value Assessment recommended? _____	
<p>9. Label number line (give one point for each of the below)</p> <p><input type="checkbox"/> 1.5 is between 1 – 2      <input type="checkbox"/> <math>1\frac{3}{4}</math> is placed right of midway between 1 – 2      <input type="checkbox"/> <math>\frac{2}{3}</math> is between 0 – 1.</p> <p><input type="checkbox"/> all correct: 3 pts      <input type="checkbox"/> 2 correct: 2pts      <input type="checkbox"/> 1 or none correct: 1 pt</p> <p>Notes:</p>	



# Grade 5: Fall

## Number Sense Screener

Script, *print 1 copy for test administrator*

### Number Words and Numerals

1. “Start counting back from 1,002 and I’ll tell you when to stop.” (stop at 997)

2. Numeral Identification Cards:

90,540 \_\_\_\_\_  $\frac{3}{5}$  \_\_\_\_\_ 40,008 \_\_\_\_\_  $1\frac{1}{2}$  \_\_\_\_\_

Lay the cards out one at a time and ask, “What number is this?”

### Multiplication and Division

3. Put the card that says  $6 \times 4$  in front of the student. “What does this say?” Show the two dot cards. (the  $6 \times 4$  array, and the card with a set of six and a set of 4) “Which of these matches six times four?” Regardless of which card the student chooses, point to the  $6$  by  $4$  array. “This one matches six times four because there are 6 rows with 4 in each row.”

“How much is  $6 \times 4$ ?”

4. Give the student the card that says  $32 \div 4$ . “Read this card.” Ensure the student reads the card correctly. Help them if necessary and make a note. “How much is  $32 \div 4$ ?”

→ If the student answers correctly, lay the array on the table for the student and say,

“Show me how you can use this to find that answer.”

→ If the student is unable to answer after a brief wait, give them the array and ask, “Can you use this to help you? There are 32 dots on this card.”

5. Show card:  $30 \times 4$ . “What is 30 times 4?”

“How did you work it out?”

6. Do not remove the card that says  $30 \times 4$ . Confirm or, if necessary, clarify for student that  $30 \times 4$  is 120. Show card:  $29 \times 4$ .

“Use your answer to  $30 \times 4$  to you figure out  $29 \times 4$ ?”

### Place Value

7. Show the student the picture of the pencil boxes. “I have 214 pencils that need to be packed into boxes with ten pencils in each box. How many boxes can I fill with 10 pencils each?” If the student does not answer correctly, ask them to explain their thinking.

8. Place out the money card, “If you spent \$12.25 and paid with \$20.00 how much money would you get back?”

“How did you work that out?” Allow student to correct answer when explaining their thinking.

9. Give student paper number line. “Put marks on the number line where these numbers go. Label the dots.”

# Grade 5: Fall

## Number Sense Screener

Spanish Script, *print 1 copy/test administrator*

### Number Words and Numerals

1. "Empieza a contar para atrás desde 1,002 y yo te digo cuando parar." (stop at 997)
2. Numeral Identification Cards: 90,540 \_\_\_  $\frac{3}{5}$  \_\_\_ 40,008 \_\_\_  $1\frac{1}{2}$  \_\_\_  
Lay the cards out one at a time and ask, "¿Cuál número es éste?"

### Multiplication and Division

3. Put the card that says  $6 \times 4$  in front of the student. "What does this say?" Show the two dot cards. (the  $6 \times 4$  array, and the card with a set of six and a set of 4) Show the two dot cards. "¿Cuál de estas tarjetas muestra seis por cuatro? Regardless of which card the student chooses, point to the 6 by 4 array. Esta muestra 6 por 4 porque hay 6 hileras con cuadro en cada hilera." ¿Cuánto es  $6 \times 4$ ?
4. Give the student the card that says  $32 \div 4$ . "Lee esta tarjeta." Ensure the student reads the card correctly. Help them if necessary and make a note. "¿Cuánto es  $32 \div 4$ ?"
  - ➔ If the student answers correctly, lay the array on the table for the student and say, "Muéstrame como puedes usar esto para encontrar la respuesta."
  - ➔ If the student is unable to answer after a brief wait, give them the array and ask, "¿Puedes usar esto para ayudarte? Hay 32 puntos en esta tarjeta."
5. Show card:  $30 \times 4$ . "¿Cuánto es  $30 \times 4$ ?"  
"¿Cómo lo resolviste?"
6. Do not remove the card that says  $30 \times 4$ . Confirm or, if necessary, clarify for student that  $30 \times 4$  is 120. Show card:  $29 \times 4$ .  
"Usa la respuesta de  $30 \times 4$  para ayudarte a resolver  $29 \times 4$ ."

### Place Value

7. Show the student the picture of the pencil boxes. "Tengo 214 lápices que necesitan empacarse en cajas de 10 lápices en cada caja. ¿Cuántas cajas puedo llenar con 10 lápices en cada una?"
8. Place out the money card, "Si gastas \$12.25, y pagas con un billete de \$20.00, cuánto de cambio recibirías?  
¿Cómo lo resolviste?" Allow student to correct answer when explaining their thinking.
9. Give student paper number line. "Ponga puntos en la línea numérica donde van estos números. Ponga el número sobre los puntos."



# Grade 5: Fall

## Administration Guide

Scoring Guide, *print 1 copy/test administrator*

### Number Words and Numerals

1. “Start counting back from one thousand two and I will tell you when to stop.” Lay card that says 1,002 on the table. (stop at 998) If student is incorrect, ask them to do it again.

3	2	1
<b>Correct and confident:</b> Student is able to complete the task with reasonable fluency. Allow for think time as necessary for students to complete the count.	<b>Correct but with errors:</b> Student completes the count, but makes self-corrections. <u>Or</u> Student is correct on 2nd attempt.	<b>Unsuccessful:</b> Student is unable to demonstrate the ability to accurately count back from 1002 - 998.
<p><b>Commentary:</b> This task is <u>not</u> about having memorized this sequence. It is about the ability to utilize the ideas of place value; to reveal that a student is making <i>sense</i> of our number system. Students in 5th grade should, according to most states’ standards, be able to count forward and back from any number under 1,000,000. Theoretically, that is. We know in actuality that many of our students cannot. Activities that support all students in developing the ability to count forward and back with both large and small numbers are beneficial to the whole class.</p>		

2. Lay the cards out one at a time and ask, “What number is this?”

90,540     $\frac{3}{5}$     40,008     $1\frac{1}{2}$

3	2	1
<b>All correct/fluent:</b> Student reads the numbers with some confidence, and the assessor is left feeling comfortable that this student can accurately read numbers up to 100,000.	<b>All correct/not confident:</b> Student reads the numbers correctly, but the assessor feels that more instruction/practice/feedback/assessment would be good.	<b>Unsuccessful:</b> Student is unable to read any one of the numbers.
<p><b>Commentary:</b> The ability to read numbers is about accessing instructional materials, understanding instruction, and engaging in mathematical discourse. Students who cannot read these numbers should be provided with the coaching and practice opportunities necessary to be able to read all numbers that will be worked with in 5th grade.</p> <p>Listen carefully for students who read one and one half as one half. This is a common mistake and can sometimes indicate a critical confusion about the number.</p>		



# Grade 5: Fall

## Multiplication and Division

3. Put the card that says  $6 \times 4$  in front of the student. **“What does this say?”** Show the two dot cards. (the  $6 \times 4$  array, and the card with a set of six and a set of 4) Show the two dot cards. **“Which of these matches six times four?”** Regardless of which cards the student chooses, point to the  $6$  by  $4$  array. **“This one matches six times four because there are 6 rows with 4 in each row.”** **“How much is six times four?”**

3	2	1
Correct and Composite: Student chooses correct dot card and answers $6 \times 4$ without signs of counting by 6s, 4s, or 1s. For example, uses a memorized fact, or uses known facts (e.g. $5 \times 4 = 20$ and $1 \times 4 = 4$ , so $6 \times 4 = 24$ ; or doubles the product of $6 \times 2$ )	Student chooses correct dot card and counts by 6s or by 4s to solve or does a combination of skip counting and count by ones	Student does not choose card that matches $6 \times 4$ and/or counts by 1s to solve (most likely using the card as a support). Even if the student has memorized $6 \times 4$ and answers that correctly, if they do not choose the correct dot card score as a 1.
<p><b>Commentary:</b> Understanding multiplication and being able to find products with little effort supports the further development of multiplicative thinking throughout mathematics. Students who do not demonstrate conceptual understanding as it relates to multiplication, and those who are not operating on composite units to find products, but instead count by 1s, will need supports in accessing 5th grade curriculum. For students who score a 1 on this task, using an Add+Vantage Math Recovery (AVMR) Multiplication &amp; Division assessment is recommended.</p>		

4. Give the student the card that says  $32 \div 4$ . **“Read this card.”** Ensure the student reads the card correctly. Help them if necessary and make a note. **“How much is  $32 \div 4$ ?”** If the student answers correctly, lay the array on the table for the student and say, **“Show me how you can use this to find that answer.”** If the student is unable to answer after a brief wait, give them the array and ask, **“Can you use this to help you? There are 32 dots on this card.”**

3	2	1
<b>Student demonstrates reasonable fluency and conceptual understanding:</b> Student answers correctly, either counting by 4s, deriving fact, or knowing fact, and student demonstrates an understanding of the relationship. The student may say there are 7 rows or columns, or they may count the 7 across a row. Accept answers that show that the student recognizes that there are either 4 sets of 8, or 8 sets of 4.	<b>Student shows fluency without conceptual understanding or understanding without fluency.</b> Student either knows the answer, but does not demonstrate an understanding of how the problem relates to the card <u>or</u> student needs the card in order to answer correctly.	<b>Incorrect:</b> Student does not answer 7
<p><b>Commentary:</b> Fluency with division is important for 5<sup>th</sup> grade, however students may use a variety of strategies for solving basic division problems. Perhaps more important is an understanding of division as it relates to sets of objects. This task has been revised to help assessors better understand how students understand division.</p>		



# Grade 5: Fall

5. Show card  $30 \times 4$ . Ask, “What is thirty times four?” If strategy is not obvious you might want to ask what strategy they used.

3	2	1
<b>Correct:</b> Answers that $30 \times 4 = 120$ .	<b>Incorrect but viable strategy:</b> Attempts a viable strategy (e.g. counting by 4s.) But makes a calculation error.	<b>Incorrect no viable strategy:</b> Student’s strategy would not result in a correct answer (e.g. answers 34)
<b>Commentary:</b> Fluency with these kinds of problems supports access to curriculum, instruction, and student to student discourse. Students who need to develop fluency should be provided with the coaching, practice, and feedback necessary.		

6. Do not remove the card that says  $30 \times 4$ . Confirm, or if necessary, clarify that the answer is 120 by saying, “ $30 \times 4$  is 120. See, 30, 60, 90, 120.”

Lay the card that says  $29 \times 4$  on the table. “ $30 \times 4$  is 120. How much is  $29 \times 4$ ?”

3	2	1
<b>Subtracts 4 from 120:</b> Student shows an understanding of the connection between $30 \times 4$ and $29 \times 4$ by subtracting four. If the student attempts to do this but makes a mistake in the subtraction count correct.	<b>Correct, solves separately:</b> Student resolves the entire task in order to answer 116.	<b>Incorrect:</b> Student does not attempt to subtract 4 (e.g. subtracts 1) or attempts to do the full calculation, or makes no attempt.
<b>Commentary:</b> This question is designed to reveal a conceptual understanding of multiplication. Over the years, the Forefront Global Cohort has revealed that this task is more difficult than the previous one. In order to improve performance on this kind of task, instructional methods like Number Talks and others that promote mental math strategies over procedures have shown themselves to be effective in improving outcomes on this task.		



# Grade 5: Fall

## Place Value

7. Show the student the picture of the pencil boxes. “I have 214 pencils that need to be packed into boxes with ten pencils in each box. How many boxes can I fill with 10 pencils each?” If the student does not answer correctly, ask them to explain their thinking.

3	2	1
<b>Correct:</b> Student answers 21 (some might account for the remainders. Take note, but this does not impact the scoring.) If student answers 22 ask them to explain to check to see if one box will be less than full.	<b>Self-corrects when explaining:</b> Student confused on the first attempt that gets corrected when thinking it through aloud.	<b>Incorrect:</b> Student is unable to see that 21 boxes are necessary.
<b>Commentary:</b> This contextualized problem, which is a place value problem in its essence helps to reveal a conceptual understanding that will support students' growing understanding of division.		

8. Place out the money card, “If you have \$20.00 and pay for something that costs \$12.25. How much change should you get?” Whether correct or incorrect, ask them, “How did you figure that out?”

3	2	1
<b>Correct:</b> Student answers \$7.50.	<b>Self Corrects when explaining:</b>	<b>Incorrect:</b> Student does not answer \$7.50
<b>Commentary:</b> This question was modified from its prior version which presented an item that costs \$16.97. Historically, only about 50% of students answered that question correctly. This is intended to better identify students who are in need of further assessment and targeted instruction.		

9. Give the student the paper number line. “Put marks on the number line where these numbers go. Label the dots.”

Scoring: Give one point for each bullet below:

- 1.5 is between 1- 2
- $1\frac{3}{4}$  is placed right of 1.5 between 1-2
- $\frac{2}{3}$  is between 0-1

3	2	1
3 points	2 points	1 or no points
<b>Commentary:</b> Fractions and decimal numbers are essential topics for 5th grade mathematics. In order for students to access the instruction, to engage productively with the curriculum, and to formalize the understandings and procedures of 5th grade students need a firm foundational understanding of fractions. The ability to place fractions and decimals on number lines is critical. Teachers will want to ensure that students can reason with how these numbers relate to one another and where they lie on the number line.		

$$1 \frac{2}{1}$$

1,002

$$32 \div 4$$

90,540

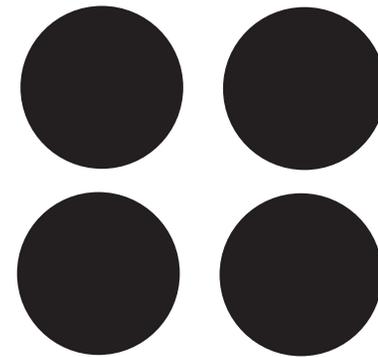
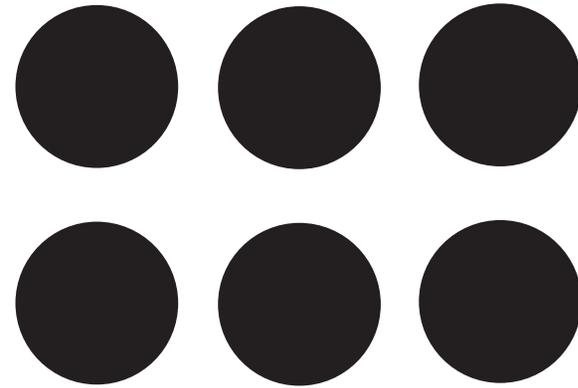
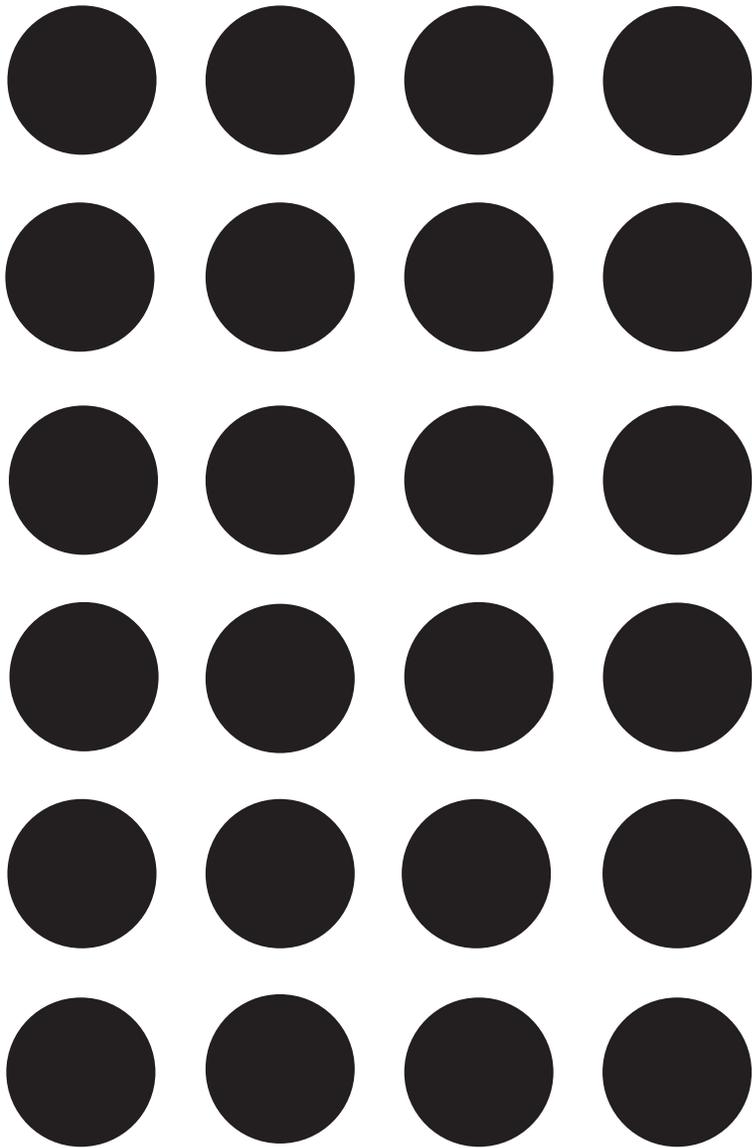
$$30 \times 4$$

$$5 \overline{)3}$$

$$29 \times 4$$

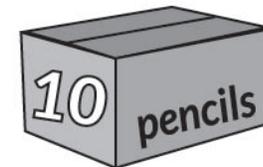
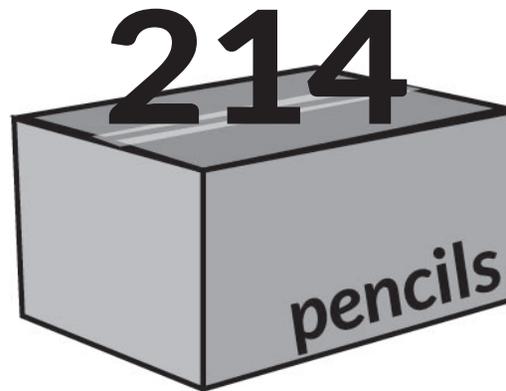
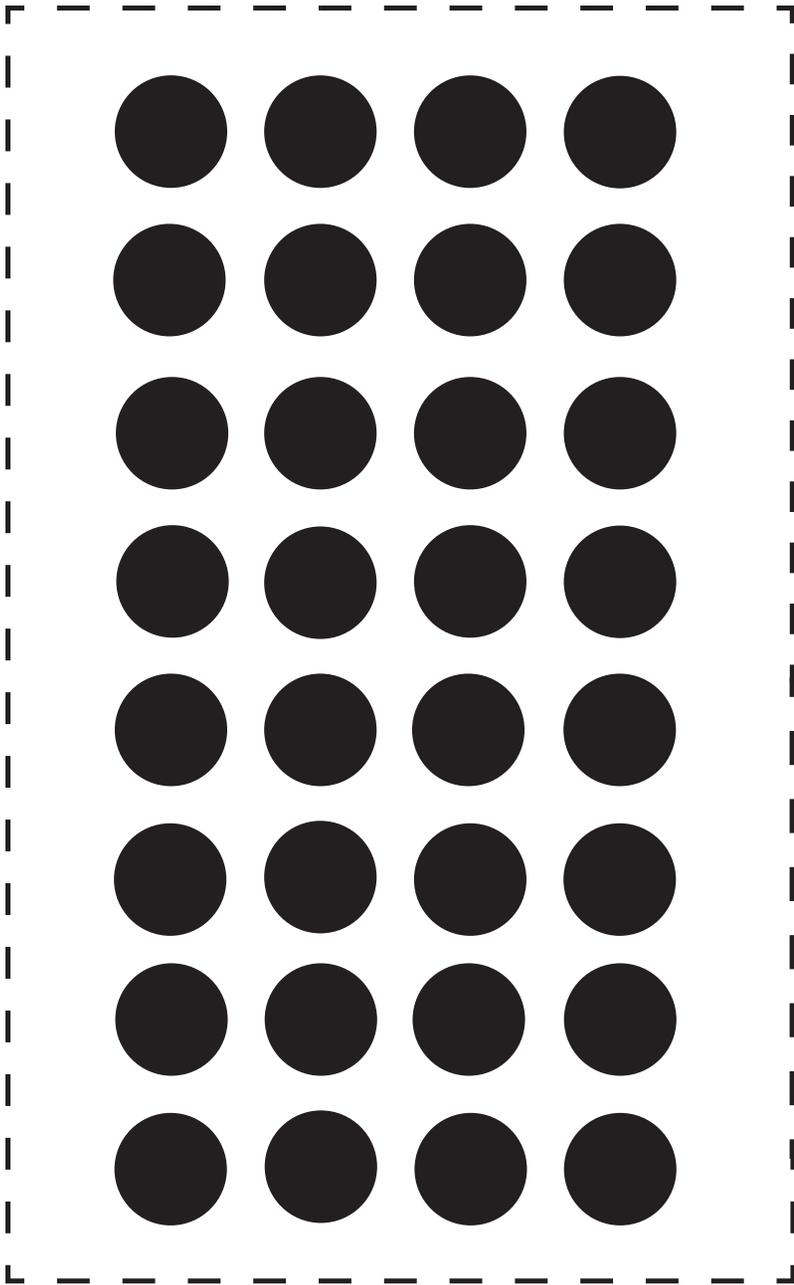
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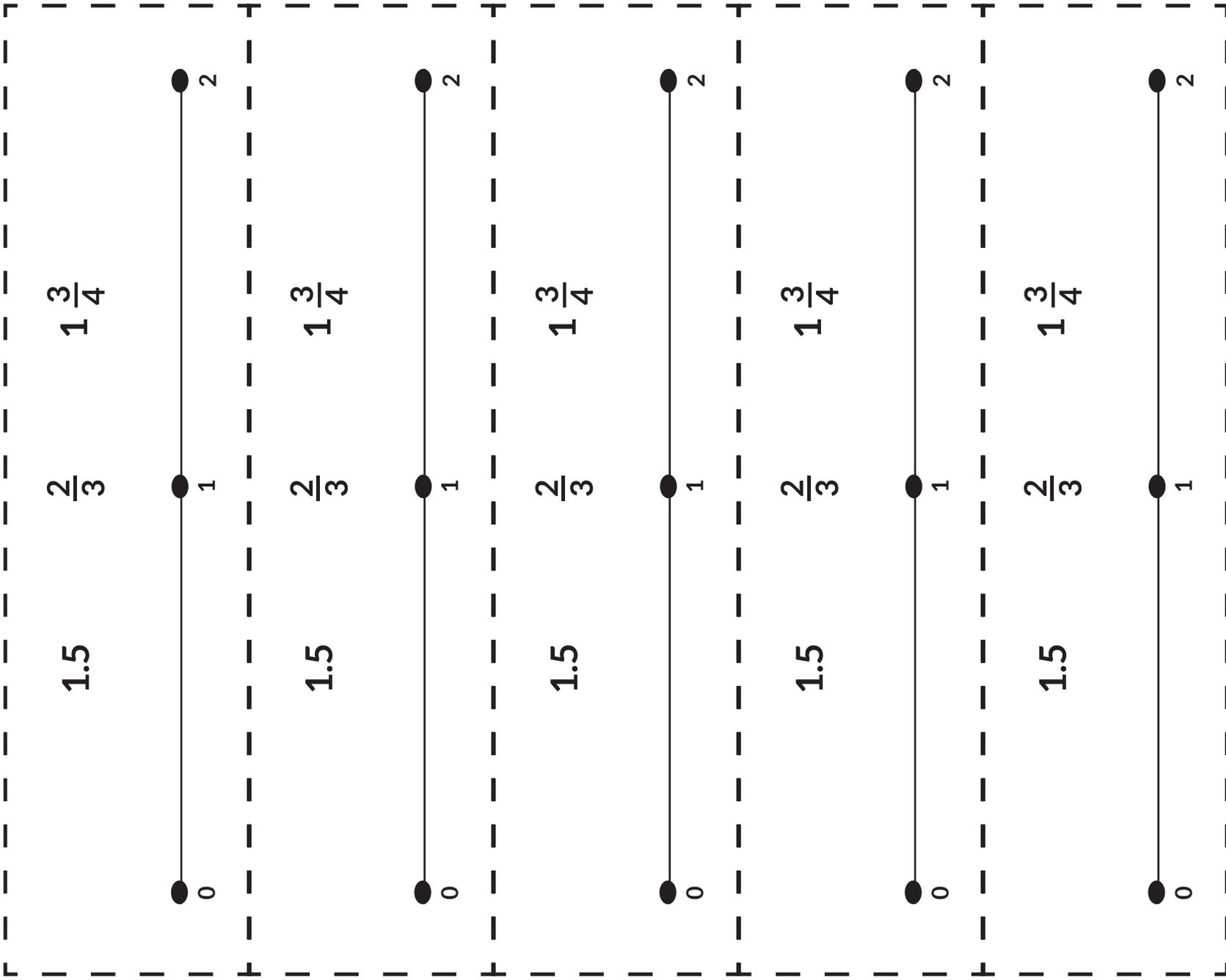




$$6 \times 4$$







copy one number line per student



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Adapted from US Math Recovery Council and BVSD Screeners page 4 of 4