Instructional Practice Toolkit

Mathematics

Analysis Activities

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Shifts at a Glance

College- and Career-Ready Shifts in Mathematics

Focus strongly where the standards focus.

Focus: The Common Core and other college- and career-ready (CCR) standards call for a greater focus in mathematics. Rather than racing to cover topics in a mile-wide, inch-deep curriculum, CCR standards require us to significantly narrow and deepen the way time and energy the way time and energy are spent in the math classroom. We focus deeply on the Major Work* of each grade so that students can gain strong foundations: solid conceptual understanding, a high degree of procedural skill and fluency, and the ability to apply the math they know to solve problems inside and outside the math classroom.

Coherence: Think across grades and link to major topics within grades.

Thinking across grades: College- and career-ready standards are designed around coherent progressions from grade to grade. Learning is carefully connected across grades so that students can build new understanding onto foundations built in previous years. Each standard is not a new event, but an extension of previous learning.

Linking to major topics: Instead of allowing additional or supporting topics to detract from the focus of the grade, these concepts serve the grade-level focus. For example, instead of data displays as an end in themselves, they are an opportunity to do grade-level word problems.

Rigor: In major topics*, pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

Conceptual understanding: CCR standards call for conceptual understanding of key concepts, such as place value and ratios. Students must be able to access concepts from a number of perspectives so that they are able to see math as more than a set of mnemonics or discrete procedures.

Procedural skill and fluency: CCR standards call for speed and accuracy in calculation. Students are given opportunities to practice core functions such as single-digit multiplication so that they have access to more complex concepts and procedures.

Application: CCR standards call for students to use math flexibly for applications in problem-solving contexts. In content areas outside of math, particularly science, students are given the opportunity to use math to make meaning of and access content.

High-level Summary of Major Work in Grades K-8

K–2	Addition and subtraction—concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions—concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

*For a list of major, additional, and supporting clusters by grade, please refer to 'Focus in Math' at achievethecore.org/focus

INSTRUCTIONAL PRACTICE GUIDE

MATH
SUBJECT

K–8
GRADES

Date

Teacher Name

School

Grade / Class Period / Section

Topic / Lesson / Unit

About The Instructional Practice Guide

Content-specific feedback is critical to teacher professional development. The Instructional Practice Guide (IPG) is a K–12 classroom observation rubric that prioritizes what is observable in and expected of classroom instruction when instructional content is aligned to college- and career-ready (CCR) standards, including the Common Core State Standards (CCSS), in Mathematics (corestandards.org/Math). It purposefully focuses on the limited number of classroom practices tied most closely to content of the lesson.[1]

Designed as a developmental rather than an evaluation tool, the IPG supports planning, reflection, and collaboration, in addition to coaching. The IPG encompasses the three Shifts by detailing how they appear in instruction:[2]

Focus strongly where the standards focus.

Coherence: Think across grades and link to major topics within grades.

Rigor: In major topics, pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

This rubric is divided into the Core Actions teachers should be taking. Each Core Action consists of indicators which further describe teacher and student behaviors that exemplify CCR-aligned instruction.

Using The Instructional Practice Guide

For each observation, you should make note of what you see and hear. It may be helpful to supplement what you've recorded with further evidence from artifacts such as lesson plans, tasks, or student work. Although many indicators will be observable during the course of a lesson, there may be times when a lesson is appropriately focused on a smaller set of objectives or you observe only a portion of a lesson. In those cases you should expect to not observe some of the indicators and to leave some of the tool blank. Whenever possible, share evidence you collected during the observation in a follow-up discussion.

After discussing the observed lesson, use the Beyond the Lesson Discussion Guide to put the content of the lesson in the context of the broader instructional plan. The questions in the Beyond the Lesson Discussion Guide help delineate what practices are in place, what has already occurred, and what opportunities might exist to incorporate the Shifts into the classroom during another lesson, further in the unit, or over the course of the year.

To further support content-specific planning, practice, and observation, explore the collection of free IPG companion tools, resources, and professional development modules at achievethecore.org/instructional-practice.

1. Refer to Aligning Content and Practice (achievethecore.org/IPG-aligning-content-and-practice) for the research underpinning the Core Actions and indicators of the Instructional Practice Guide and to learn more about how the design of the tool supports content-specific observation and feedback.
2. Refer to Common Core Shifts at a Glance (achievethecore.org/shifts-mathematics) and the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (achievethecore.org/publisherscriteria-math-k-8) for additional information about the Shifts required by the CCSS.

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Core Action 1

Ensure the work of the enacted lesson reflects the Focus, Coherence, and Rigor required by college- and career-ready standards in mathematics.

A. The enacted lesson focuses on the grade-level cluster(s), grade-level content standard(s), or part(s) thereof.

Mathematical learning goal: _____

Standard(s) addressed in this lesson: _____

B. The enacted lesson appropriately relates new content to math content within or across grades.

C. The enacted lesson intentionally targets the aspect(s) of Rigor (conceptual understanding, procedural skill and fluency, application) called for by the standard(s) being addressed.

Circle the aspect(s) of Rigor targeted in the standard(s) addressed in this lesson: Conceptual understanding / Procedural skill and fluency / Application

Circle the aspect(s) of Rigor targeted in this lesson: Conceptual understanding / Procedural skill and fluency / Application

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Core Action 2

Employ instructional practices that allow all students to learn the content of the lesson.

A. The teacher makes the mathematics of the lesson explicit through the use of explanations, representations, tasks, and/or examples.

B. The teacher strengthens all students' understanding of the content by strategically sharing students' representations and/or solution methods.

C. The teacher deliberately checks for understanding throughout the lesson to surface misconceptions and opportunities for growth, and adapts the lesson according to student understanding.

D. The teacher facilitates the summary of the mathematics with references to student work and discussion in order to reinforce the purpose of the lesson.

Core Action 3

Provide all students with opportunities to exhibit mathematical practices while engaging with the content of the lesson.

A. The teacher provides opportunities for all students to work with and practice grade-level problems and exercises.
Students work with and practice grade-level problems and exercises.

B. The teacher cultivates reasoning and problem solving by allowing students to productively struggle.
Students persevere in solving problems in the face of difficulty.

C. The teacher poses questions and problems that prompt students to explain their thinking about the content of the lesson.
Students share their thinking about the content of the lesson beyond just stating answers.

D. The teacher creates the conditions for student conversations where students are encouraged to talk about each other's thinking.
Students talk and ask questions about each other's thinking, in order to clarify or improve their own mathematical understanding.

E. The teacher connects and develops students' informal language and mathematical ideas to precise mathematical language and ideas.
Students use increasingly precise mathematical language and ideas.

If any uncorrected mathematical errors are made during the context of the lesson (instruction, materials, or classroom displays), note them here.

Name: Date: Observer Name:

CORE ACTION 1: Ensure the work of the enacted lesson reflects the Focus, Coherence, and Rigor required by college- and career-ready standards in mathematics.

INDICATORS / NOTE EVIDENCE OBSERVED OR GATHERED FOR EACH INDICATOR	RATING
A. The enacted lesson focuses on the grade-level cluster(s), grade-level content standard(s), or part(s) thereof. Mathematical learning goal: Standard(s) addressed in this lesson:	Yes- The enacted lesson focuses only on mathematics within the grade-level standards. No- The enacted lesson focuses on mathematics outside the grade-level standards.
B. The enacted lesson appropriately relates new content to math content within or across grades.	Yes- The enacted lesson builds on students' prior skills and understandings. No- The enacted lesson does not connect or has weak connections to students' prior skills and understandings.
C. The enacted lesson intentionally targets the aspect(s) of Rigor (conceptual understanding, procedural skill and fluency, application) called for by the standard(s) being addressed. Circle the aspect(s) of Rigor targeted in the standard(s) addressed in this lesson: Conceptual understanding / Procedural skill and fluency / Application Circle the aspect(s) of Rigor targeted in this lesson: Conceptual understanding / Procedural skill and fluency / Application	Yes- The enacted lesson explicitly targets the aspect(s) of Rigor called for by the standard(s) being addressed. No- The enacted lesson targets aspects of Rigor that are not appropriate for the standard(s) being addressed.

Name: Date: Observer Name:

CORE ACTION 2: Employ instructional practices that allow all students to learn the content of the lesson.

INDICATORS[3] / NOTE EVIDENCE OBSERVED OR GATHERED FOR EACH INDICATOR	RATING
A. The teacher makes the mathematics of the lesson explicit through the use of explanations, representations, tasks, and/or examples. ☐ NOT OBSERVED	4- A variety of instructional techniques and examples are used to make the mathematics of the lesson clear. 3- Examples are used to make the mathematics of the lesson clear. 2- Instruction is limited to showing students how to get the answer. 1- Instruction is not focused on the mathematics of the lesson.
B. The teacher strengthens all students' understanding of the content by strategically sharing students' representations and/or solution methods. ☐ NOT OBSERVED	4- Student solution methods are shared, and connections to the mathematics are explicit and purposeful. If applicable, connections between the methods are examined. 3- Student solution methods are shared, and some mathematical connections are made between them. 2- Student solution methods are shared, but few connections are made to strengthen student understanding. 1- Student solution methods are not shared.
C. The teacher deliberately checks for understanding throughout the lesson to surface misconceptions and opportunities for growth, and adapts the lesson according to student understanding. ☐ NOT OBSERVED	4- There are checks for understanding used throughout the lesson to assess progress of all students, and adjustments to instruction are made in response, as needed. 3- There are checks for understanding used throughout the lesson to assess progress of some students; minimal adjustments are made to instruction, even when adjustments are appropriate. 2- There are few checks for understanding, or the progress of only a few students is assessed. Instruction is not adjusted based on students' needs. 1- There are no checks for understanding; therefore, no adjustments are made to instruction.
D. The teacher facilitates the summary of the mathematics with references to student work and discussion in order to reinforce the purpose of the lesson. ☐ NOT OBSERVED	4- The lesson includes a summary with references to student work and discussion that reinforces the mathematics. 3- The lesson includes a summary with a focus on the mathematics. 2- The lesson includes a summary with limited focus on the mathematics. 1- The lesson includes no summary of the mathematics.

3. These actions may be viewed over the course of 2–3 class periods.

www.achievethecore.org/instructional-practice Published 08.2018.

Name: Date: Observer Name:

CORE ACTION 3: Provide all students with opportunities to exhibit mathematical practices while engaging with the content of the lesson.[4]

INDICATORS[5][6] / NOTE EVIDENCE OBSERVED OR GATHERED FOR EACH INDICATOR / RATING

4- Teacher provides many opportunities, and most students take them.
3- Teacher provides many opportunities, and some students take them; or teacher provides some opportunities and most students take them.
2- Teacher provides some opportunities, and some students take them.
1- Teacher provides few or no opportunities, or few or very few students take the opportunities provided.

A. The **teacher** provides opportunities for all students to work with and practice grade-level problems and exercises. **Students** work with and practice grade-level problems and exercises.	4 3 2 1 ☐ NOT OBSERVED
B. The **teacher** cultivates reasoning and problem solving by allowing students to productively struggle. **Students** persevere in solving problems in the face of difficulty.	4 3 2 1 ☐ NOT OBSERVED
C. The **teacher** poses questions and problems that prompt students to explain their thinking about the content of the lesson. **Students** share their thinking about the content of the lesson beyond just stating answers.	4 3 2 1 ☐ NOT OBSERVED
D. The **teacher** creates the conditions for student conversations where students are encouraged to talk about each other's thinking. **Students** talk and ask questions about each other's thinking, in order to clarify or improve their own mathematical understanding.	4 3 2 1 ☐ NOT OBSERVED
E. The **teacher** connects and develops students' informal language and mathematical ideas to precise mathematical language and ideas. **Students** use increasingly precise mathematical language and ideas.	4 3 2 1 ☐ NOT OBSERVED

If any uncorrected mathematical errors are made during the context of the lesson (instruction, materials, or classroom displays), note them here.

4. There is not a one-to-one correspondence between the indicators for this Core Action and the Standards for Mathematical Practice. These indicators represent the Standards for Mathematical Practice that are most easily observed during instruction.
5. Some portions adapted from 'Looking for Standards in the Mathematics Classroom' 5x8 card published by the Strategic Education Research Partnership (http://math.serpmedia.org/5x8card/).
6. Some or most of the indicators and student behaviors should be observable in every lesson, though not all will be evident in all lessons. For more information on teaching practices, see NCTM's publication Principles to Actions: Ensuring Mathematical Success for All for eight Mathematics Teaching Practices listed under the principle of Teaching and Learning (http://www.nctm.org/principlestoactions).

BEYOND THE LESSON: DISCUSSION GUIDE

MATHEMATICS

INTRODUCTION

The Beyond the Lesson Discussion Guide is designed for the post-observation conversation using the Instructional Practice Guide (achievethecore.org/instructional-practice) or any other observation rubric. The questions put the content of the lesson in the context of the broader instructional plan for the unit or year. The conversation should first reflect on the evidence collected during the observation to consider what worked, what could improve, and what resources are available to support improvement. If any parts of the Lesson Planning Tool (achievethecore.org/lesson-planning-tool) were used in preparing for the lesson, refer to that information during the discussion. After discussing the observed lesson, use the "Beyond the Lesson" questions to help clearly delineate what practices are in place, what has already occurred, and what opportunities might exist in another lesson, further in the unit, or over the course of the year to incorporate the Shifts into the classroom.

1. **Is this unit targeting the Major Work of the Grade? Does the prior unit target Major Work? Does the next unit target Major Work? How much time would you estimate will be spent on the Major Work in this class this year? (K–8)** Focus means significantly narrowing the scope of content in each grade so that students achieve at higher levels and experience more deeply that which remains. For more information on Major Work of the Grade, see achievethecore.org/focus.

2. **Does this unit target the Supporting Work of the Grade? If so, will this unit highlight the connection to the Major Work of the Grade? Explain how. (K–8)** Supporting content enhances Focus and Coherence simultaneously by engaging students in the Major Work of the Grade. For example, materials for K–5 generally treat data displays as an occasion for solving grade-level word problems using the four operations (see 3.MD.3); materials for grade 7 take advantage of opportunities to use probability to support ratios, proportions, and percents.

3. **Summarize how this lesson fits within the unit. Describe how the other lessons and tasks in this unit are intentionally sequenced to help students develop increasingly sophisticated understanding, skills, and practices.** For more information on coherent connections across and within grades, see http://ime.math.arizona.edu/progressions/.

4. **Which of the three aspects of Rigor (conceptual understanding, procedural skill and fluency, and application) are attended to within this unit? If more than one aspect is attended to, when in the unit are they attended to individually, and when are students using them together?** Rigor is defined as pursuing conceptual understanding, procedural skill and fluency, and application with equal intensity. The standards are written using language that informs the reader as to which aspect of Rigor certain standards address. Some clusters or standards specifically require one aspect of Rigor; some require multiple aspects. All aspects of Rigor need not be addressed in every lesson.

5. **How will you meet all students' needs while working on grade/course-level content in this unit? (e.g., How will you provide scaffolding for students below grade/course level so they can reach the grade/course-level expectations? How will you create opportunities for students who are advanced to go deeper into the grade/course-level content?)** For more information, see Adapting the Lesson under Problems & Exercises in the Lesson Planning Tool: achievethecore.org/lesson-planning-tool.

6. **What off-grade/course-level standards have you taught this year and why?** There may be reasons for addressing topics in a strategic way before or after the grade in which the topic is central in the standards. However, any such purposeful discrepancies should enhance the required learning, not unduly interfere with or displace grade/course-level content, and be clearly aimed at helping students meet the standards as written.

7. **In what ways do you provide diagnostic feedback to students? Do students have opportunities to revise their thinking? Does student work include revisions of solutions, explanations, and justifications?**

8. **In what ways have your students made progress towards mastering the grade/course-level content standards? How are you monitoring and tracking their achievement of the standards? What work still needs to be done to ensure all students achieve mastery of each standard by the end of the year?** For more information on the Standards for Mathematical Content, see corestandards.org/Math.

9. **In what ways have you seen your students increase their independence in applying the Standards for Mathematical Practice in learning content this year? Which practice standards do students still need to develop and how can you support them in doing so?** For more information on the Standards for Mathematical Practice, see corestandards.org/Math/Practice.

10. **What tools are appropriate for students to independently access when solving mathematical problems in this unit? Do students frequently choose and use appropriate tools strategically in this class?** For more information on SMP5, see corestandards.org/Math/Practice.

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CCSS WHERE TO FOCUS KINDERGARTEN MATHEMATICS

MATH K F

MATHEMATICS KINDERGARTEN FOCUS

This document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Standards.

Not all content in a given grade is emphasized equally in the Standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Standards for Mathematical Practice.

To say that some things have greater emphasis is not to say that anything in the Standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

Students should spend the large majority[1] of their time on the major work of the grade (■). Supporting work (□) and, where appropriate, additional work (○) can engage students in the major work of the grade.[2, 3]

MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR KINDERGARTEN

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

K.CC.A	■	Know number names and the count sequence.
K.CC.B	■	Count to tell the number of objects.
K.CC.C	■	Compare numbers.
K.OA.A	■	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
K.NBT.A	■	Work with numbers 11–19 to gain foundations for place value.
K.MD.A	○	Describe and compare measureable attributes.
K.MD.B	□	Classify objects and count the number of objects in categories.
K.G.A	○	Identify and describe shapes.
K.G.B	□	Analyze, compare, create, and compose shapes.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR KINDERGARTEN

K.OA.A.5	Add/subtract within 5

1 At least 65% and up to approximately 85% of class time, with Grades K–2 nearer the upper end of that range, should be devoted to the major work of the grade. For more information, see Criterion #1 of the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
2 Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
3 Note, the critical areas are a survey of what will be taught at each grade level; the major work is the subset of topics that deserve the large majority of instructional time during a given year to best prepare students for college and careers.

CCSS WHERE TO FOCUS GRADE 1 MATHEMATICS

MATH — MATHEMATICS | 1 — GRADE 1 | F — FOCUS

This document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Standards.

Not all content in a given grade is emphasized equally in the Standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Standards for Mathematical Practice.

To say that some things have greater emphasis is not to say that anything in the Standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

Students should spend the large majority[1] of their time on the major work of the grade (■). Supporting work (□) and, where appropriate, additional work (○) can engage students in the major work of the grade.[2, 3]

MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 1

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

1.OA.A	■	Represent and solve problems involving addition and subtraction.
1.OA.B	■	Understand and apply properties of operations and the relationship between addition and subtraction.
1.OA.C	■	Add and subtract within 20.
1.OA.D	■	Work with addition and subtraction equations.
1.NBT.A	■	Extending the counting sequence.
1.NBT.B	■	Understand place value.
1.NBT.C	■	Use place value understanding and properties of operations to add and subtract.
1.MD.A	■	Measure lengths indirectly and by iterating length units.
1.MD.B	○	Tell and write time.
1.MD.C	□	Represent and interpret data.
1.G.A	○	Reason with shapes and their attributes.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 1

1.OA.C.6	Add/subtract within 10

1 At least 65% and up to approximately 85% of class time, with Grades K–2 nearer the upper end of that range, should be devoted to the major work of the grade. For more information, see Criterion #1 of the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
2 Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
3 Note, the critical areas are a survey of what will be taught at each grade level; the major work is the subset of topics that deserve the large majority of instructional time during a given year to best prepare students for college and careers.

CCSS WHERE TO FOCUS GRADE 2 MATHEMATICS

MATH | 2 | F

MATHEMATICS | GRADE 2 | FOCUS

This document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Standards.

Not all content in a given grade is emphasized equally in the Standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Standards for Mathematical Practice.

To say that some things have greater emphasis is not to say that anything in the Standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

Students should spend the large majority[1] of their time on the major work of the grade (■). Supporting work (□) and, where appropriate, additional work (○) can engage students in the major work of the grade.[2, 3]

MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 2

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

2.OA.A	■	Represent and solve problems involving addition and subtraction.
2.OA.B	■	Add and subtract within 20.
2.OA.C	□	Work with equal groups of objects to gain foundations for multiplication.
2.NBT.A	■	Understand place value.
2.NBT.B	■	Use place value understanding and properties of operations to add and subtract.
2.MD.A	■	Measure and estimate lengths in standard units.
2.MD.B	■	Relate addition and subtraction to length.
2.MD.C	□	Work with time and money.
2.MD.D	□	Represent and interpret data.
2.G.A	○	Reason with shapes and their attributes.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 2

2.OA.B.2	Single-digit sums and differences (sums from memory by end of Grade 2)
2.NBT.B.5	Add/subtract within 100

1 At least 65% and up to approximately 85% of class time, with Grades K–2 nearer the upper end of that range, should be devoted to the major work of the grade. For more information, see Criterion #1 of the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
2 Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
3 Note, the critical areas are a survey of what will be taught at each grade level; the major work is the subset of topics that deserve the large majority of instructional time during a given year to best prepare students for college and careers.

CCSS WHERE TO FOCUS GRADE 3 MATHEMATICS

MATH — MATHEMATICS | 3 — GRADE 3 | F — FOCUS

This document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Standards.

Not all content in a given grade is emphasized equally in the Standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Standards for Mathematical Practice.

To say that some things have greater emphasis is not to say that anything in the Standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

Students should spend the large majority[1] of their time on the major work of the grade (■). Supporting work (□) and, where appropriate, additional work (○) can engage students in the major work of the grade.[2, 3]

MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 3

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

3.OA.A	■	Represent and solve problems involving multiplication and division.
3.OA.B	■	Understand properties of multiplication and the relationship between multiplication and division.
3.OA.C	■	Multiply and divide within 100.
3.OA.D	■	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
3.NBT.A	○	Use place value understanding and properties of operations to perform multi-digit arithmetic.
3.NF.A	■	Develop understanding of fractions as numbers.
3.MD.A	■	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
3.MD.B	□	Represent and interpret data.
3.MD.C	■	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
3.MD.D	○	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
3.G.A	□	Reason with shapes and their attributes.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 3

3.OA.C.7	Single-digit products and quotients (Products from memory by end of Grade 3)
3.NBT.A.2	Add/subtract within 1000

1 At least 65% and up to approximately 85% of class time, with Grades K–2 nearer the upper end of that range, should be devoted to the major work of the grade. For more information, see Criterion #1 of the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
2 Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics www.achievethecore.org/publisherscriteria.
3 Note, the critical areas are a survey of what will be taught at each grade level; the major work is the subset of topics that deserve the large majority of instructional time during a given year to best prepare students for college and careers.

CCSS WHERE TO FOCUS GRADE 4 MATHEMATICS

MATH | 4 | F

MATHEMATICS | GRADE 4 | FOCUS

This document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Standards.

Not all content in a given grade is emphasized equally in the Standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Standards for Mathematical Practice.

To say that some things have greater emphasis is not to say that anything in the Standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

Students should spend the large majority[1] of their time on the major work of the grade (■). Supporting work (□) and, where appropriate, additional work (○) can engage students in the major work of the grade.[2, 3]

MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 4

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

4.OA.A	■	Use the four operations with whole numbers to solve problems.
4.OA.B	□	Gain familiarity with factors and multiples.
4.OA.C	○	Generate and analyze patterns.
4.NBT.A	■	Generalize place value understanding for multi-digit whole numbers.
4.NBT.B	■	Use place value understanding and properties of operations to perform multi-digit arithmetic.
4.NF.A	■	Extend understanding of fraction equivalence and ordering.
4.NF.B	■	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
4.NF.C	■	Understand decimal notation for fractions, and compare decimal fractions.
4.MD.A	□	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
4.MD.B	□	Represent and interpret data.
4.MD.C	○	Geometric measurement: understand concepts of angle and measure angles.
4.G.A	○	Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 4

4.NBT.B.4	Add/subtract within 1,000,000

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CCSS WHERE TO FOCUS GRADE 5 MATHEMATICS

MATH | 5 | F

MATHEMATICS | GRADE 5 | FOCUS

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MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 5

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

5.OA.A	○	Write and interpret numerical expressions.
5.OA.B	○	Analyze patterns and relationships.
5.NBT.A	■	Understand the place value system.
5.NBT.B	■	Perform operations with multi-digit whole numbers and with decimals to hundredths.
5.NF.A	■	Use equivalent fractions as a strategy to add and subtract fractions.
5.NF.B	■	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
5.MD.A	□	Convert like measurement units within a given measurement system.
5.MD.B	□	Represent and interpret data.
5.MD.C	■	Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
5.G.A	○	Graph points on the coordinate plane to solve real-world and mathematical problems.
5.G.B	○	Classify two-dimensional figures into categories based on their properties.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 5

5.NBT.B.5	Multi-digit multiplication

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CCSS WHERE TO FOCUS GRADE 6 MATHEMATICS

MATH | 6 | F

MATHEMATICS | GRADE 6 | FOCUS

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MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 6

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

6.RP.A	■	Understand ratio concepts and use ratio reasoning to solve problems.
6.NS.A	■	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
6.NS.B	○	Compute fluently with multi-digit numbers and find common factors and multiples.
6.NS.C	■	Apply and extend previous understandings of numbers to the system of rational numbers.
6.EE.A	■	Apply and extend previous understandings of arithmetic to algebraic expressions.
6.EE.B	■	Reason about and solve one-variable equations and inequalities.
6.EE.C	■	Represent and analyze quantitative relationships between dependent and independent variables.
6.G.A	□	Solve real-world and mathematical problems involving area, surface area, and volume.
6.SP.A	○	Develop understanding of statistical variability.
6.SP.B	○	Summarize and describe distributions.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 6

6.NS.B.2	Multi-digit division
6.NS.B.3	Multi-digit decimal operations

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CCSS WHERE TO FOCUS GRADE 7 MATHEMATICS

MATH 7 F

MATHEMATICS GRADE 7 FOCUS

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MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 7

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

7.RP.A	■	Analyze proportional relationships and use them to solve real-world and mathematical problems.
7.NS.A	■	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
7.EE.A	■	Use properties of operations to generate equivalent expressions.
7.EE.B	■	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
7.G.A	○	Draw, construct and describe geometrical figures and describe the relationships between them.
7.G.B	○	Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
7.SP.A	□	Use random sampling to draw inferences about a population.
7.SP.B	○	Draw informal comparative inferences about two populations.
7.SP.C	□	Investigate chance processes and develop, use, and evaluate probability models.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

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CCSS WHERE TO FOCUS GRADE 8 MATHEMATICS

MATH 8 F

MATHEMATICS GRADE 8 FOCUS

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MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 8

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

8.NS.A	□	Know that there are numbers that are not rational, and approximate them by rational numbers.
8.EE.A	■	Work with radicals and integer exponents.
8.EE.B	■	Understand the connections between proportional relationships, lines, and linear equations.
8.EE.C	■	Analyze and solve linear equations and pairs of simultaneous linear equations.
8.F.A	■	Define, evaluate, and compare functions.
8.F.B	■	Use functions to model relationships between quantities.
8.G.A	■	Understand congruence and similarity using physical models, transparencies, or geometry software.
8.G.B	■	Understand and apply the Pythagorean Theorem.
8.G.C	○	Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.
8.SP.A	□	Investigate patterns of association in bivariate data.

HIGHLIGHTS OF MAJOR WORK IN GRADES K–8

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

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CCSS WHERE TO FOCUS GRADE 6 MATHEMATICS

An important subset of the major work in grades K–8 is the progression that leads toward middle school algebra.

K	1	2	3	4	5	6	7	8
Know number names and the count sequence Count to tell the number of objects Compare numbers Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from Work with numbers 11-19 to gain foundations for place value	Represent and solve problems involving addition and subtraction Understand and apply properties of operations and the relationship between addition and subtraction Add and subtract within 20 Work with addition and subtraction equations Extend the counting sequence Understand place value Use place value understanding and properties of operations to add and subtract Measure lengths indirectly and by iterating length units	Represent and solve problems involving addition and subtraction Add and subtract within 20 Understand place value Use place value understanding and properties of operations to add and subtract Measure and estimate lengths in standard units Relate addition and subtraction to length	Represent & solve problems involving multiplication and division Understand properties of multiplication and the relationship between multiplication and division Multiply & divide within 100 Solve problems involving the four operations, and identify & explain patterns in arithmetic Develop understanding of fractions as numbers Solve problems involving measurement and estimation of intervals of time, liquid volumes, & masses of objects Geometric measurement: understand concepts of area and relate area to multiplication and to addition	Use the four operations with whole numbers to solve problems Generalize place value understanding for multi-digit whole numbers Use place value understanding and properties of operations to perform multidigit arithmetic Extend understanding of fraction equivalence and ordering Build fractions from unit fractions by applying and extending previous understandings of operations Understand decimal notation for fractions, and compare decimal fractions	Understand the place value system Perform operations with multi-digit whole numbers and decimals to hundredths Use equivalent fractions as a strategy to add and subtract fractions Apply and extend previous understandings of multiplication and division to multiply and divide fractions Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition Graph points in the coordinate plane to solve real-world and mathematical problems*	Apply and extend previous understandings of multiplication and division to divide fractions by fractions Apply and extend previous understandings of numbers to the system of rational numbers Understand ratio concepts and use ratio reasoning to solve problems Apply and extend previous understandings of arithmetic to algebraic expressions Reason about and solve one-variable equations and inequalities Represent and analyze quantitative relationships between dependent and independent variables	Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers Analyze proportional relationships and use them to solve real-world and mathematical problems Use properties of operations to generate equivalent expressions Solve real-life and mathematical problems using numerical and algebraic expressions and equations	Work with radical and integer exponents Understand the connections between proportional relationships, lines, and linear equations** Analyze and solve linear equations and pairs of simultaneous linear equations Define, evaluate, and compare functions Use functions to model relationships between quantities

* Indicates a cluster that is well thought of as a part of a student's progress to algebra, but that is currently not designated as major by the assessment consortia in their draft materials. Apart from the one asterisked exception, the clusters listed here are a subset of those designated as major in the assessment consortia's draft documents.
** Depends on similarity ideas from geometry to show that slope can be defined and then used to show that a linear equation has a graph which is a straight line and conversely.

The Observation and Feedback Cycle: Best Practices for Low Inference Notes

Observe

The school leader visits the classroom and takes low-inference notes on teacher and student actions.

Best Practices for Observation
1. **Eliminate effects of bias.** Enter the classroom without judgment and work from evidence.
2. **Take low-inference notes.** Write down only what teacher and students say and do.
3. **Look for learning.** Seek evidence of what students know and are able to do.
4. **Remain, review, reflect.** Pause to organize your evidence before rating.

Collecting low inference evidence during an observation

Capturing high-quality notes during the observation is the first step in ensuring that ratings are accurate and feedback aligns to teachers' needed areas of improvement. **Low-inference note-taking is a skill**, not knowledge. Knowing how to do a push-up doesn't mean you can do 25 of them in 60 seconds; it comes with practice. When taking low-inference notes, the school leader describes what is taking place without drawing conclusions or making judgments about what he or she observes. When taking notes on instruction, ask:

- What do you see and hear the teacher and students saying and doing?
- What evidence can you gather of student learning?
- What will students know and be able to do at the end of the lesson?

Common mistakes/pitfalls to avoid

- Distinguish between low-inference statements and opinions. For instance, you can identify key words that give away subjectivity: e.g., *"I think,"* or *"I feel."* Be cognizant of keeping evidence separate from opinions, using this framework:

Evidence	Opinion
• Is observable • Is not influenced by the observer's perspective • Is free of evaluative words • Does not draw conclusions	• Makes inferences • Depends on observer's perspective • Includes evaluative words • Draws conclusions

- Replace vague quantifiers by capturing more specific evidence: e.g., *"a lot of students raised their hands"* vs. *"17 of 20 students raised their hands."*
- Swap Edu-Speak for Evidence. For example, rather than saying, *"You differentiated by scaffolding questions during the mini-lesson,"* identify the actual questions that the teacher asked, such as *"What is the name of this shape? How is it different from a square or rectangle? Where in real life have you seen this shape?"*

For electronic version, visit: https://www.weteachnyc.org/media2016/filer_public/2a d3/2ad3839feeae-42ba-8249-614b33136717/best_practices_for_low_inference_notes.pdf

Tips for low inference note taking

Where to find the data for student outcomes during an observation:

- Sit with a table/group of students. Write down the questions asked and answers given by the students in that group.
- Copy down what each student has written on their paper VERBATIM into your observation notes (e.g., answer to #2 on handout, response to quick-write prompt). The observer can obtain a handout from the teacher, if available, and record the answers directly onto it.
- Write down the time and circulate in the room. Record the item that all students are working on in that moment. Then, go around a second time.
- Select a problem, determine the correct answer, and tally the number of students who have the correct response written on their papers.
- If recording observation notes using an iPad, use the iPad to take pictures of actual student work during the classroom observation.
- Move around the classroom and identify students performing at high, medium, low levels and strategically capture their work
- Monitor observation notes to ensure that the "student side" is not neglected.
- Ask students to tell you what they are learning/doing, why they are learning, and if they have learned anything new today.
- Collect the lesson plan and/or copies of student work prior to leaving the classroom.

How do I capture as much evidence as possible?

- Set up a coding system (T= teacher, S= student, HU= hands up)
- Time transitions, each section of the lesson, work time, etc.
- Copy objective or aim, or make a note if it is not posted
- Draw circles to represent groups of students or teacher interaction with students

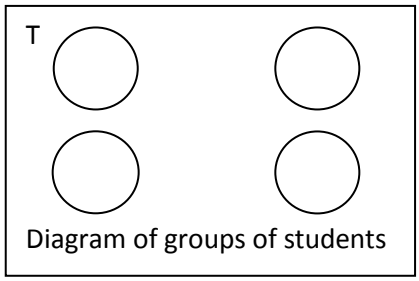
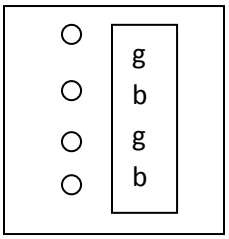


Diagram of groups of students



- If you notice a trend, create a tally on the side, so you can capture other evidence that may be occurring while also documenting the trend. For example, Jane is the only one responding to the teacher's questions. You may capture several instances verbatim, but you can also capture how many times it occurs if you can't capture everything Jane said.

  Use tallies or shorthand in the diagram or a chart:

Jane is called on	~~||||~~ |
Times teacher provides feedback to front table	|||

- Quality over quantity: collect a full interaction.
  - *When teacher did __, student __. When student said __, teacher said__.*

Low-Inference Note-Taking Samples: Strong versus Weak

Strong example of low-inference notes:

Time	Teacher Actions	Student Actions
1:00	Teacher says to walking students, "You need to be on the rug in 3-2-1."	Twenty-four students on the carpet facing the front of the room. 3 students walking around the classroom. As teacher said "one" students joined classmates.
1:01	Teacher asked "How many days are there in the week?" Teacher repeated question and then said, "Anyone?" Teacher asked kids to stand and lead them in "The Days of the Week" song.	5-6 kids spoke to each other when teacher spoke. She called on Terrence who said "7." 16 of the 27 kids stood up for the song.
1:02	Teacher asked "What day comes after Saturday?"	Steven shouted out, "Monday!" Most students laughed – 2 boys physically rolled around and knocked over 2 girls. Steven walked away from the group, and sat in the opposite corner of the classroom.
1:03	Teacher said, "OK boys and girls if you hear my voice clap once, If you hear my voice clap twice."	After two claps, all but 2 boys were quiet and looking at her.

Weak example of low-inference notes:

Time	Teacher Actions	Student Actions
1:00		Students on carpet during mini-lesson. Lots of students walking around the classroom while the teacher tried to get their attention.
1:01	Teacher asked questions about the calendar.	Many students were not listening while the teacher reviewed the days of the week.
1:02		Steven called out over and over again when you asked the question about the days of the week.
1:03		Steven walked away from the group and the class fell apart.
1:04	Mini-lesson is not successful. Little student learning accomplished as teacher has no classroom management skills.	
1:05	Poor classroom management continues through sloppy transitions from carpet to desks.	Several students are talking to one another.
1:06	The teacher seemed to be okay with this.	A few students go to the round table. Some start reading and some don't.

Lesson Plan Analysis

Lesson: _____

Use this document to record information/evidence from the sample lesson plan. Evidence should consider the Core Actions. Evidence recorded will be integrated into the Feedback Summary worksheet.

Core Action 1: **Ensure the work of the enacted lesson reflects the Focus, Coherence, and Rigor required by the college- and career-ready standards in mathematics.**
Discussion Questions
• **Which standard(s) and/or cluster(s) are targeted in this lesson? Does the lesson address a part of the standard(s) or all aspects of the standard(s)? Are they grade-level standards? Are they part of the Major Work of the grade?** • **If the standard(s) targeted are Supporting Work of the grade, how will connections be made to engage students in the Major Work of the grade?** • **What is the mathematical learning goal for students in this lesson?** • **Which aspect(s) of Rigor (conceptual understanding, procedural skill and fluency, and application) do the targeted standards require? What features of the lesson support the aspect(s) of Rigor present in the targeted standards?** • **How does the teacher plan to make explicit connections to build on students' prior skills and understandings? What will the teacher say to students or show students to make this connection clear?**

Core Action 2:
Employ instructional practices that allow all students to learn the content of the lesson.

Discussion Questions

- How does the teacher plan to use explanations, representations, tasks, and/or examples that will make the mathematics of this lesson clear to students?
- What will students produce? Are they expected to produce only answers?
- What ideas/concepts will be the focus of discussions?
- How will students share/present their mathematical work to support all students' understanding of the topic?
- When in the lesson does the teacher plan to check for understanding?
- How does the teacher plan to summarize the mathematics of the lesson? Will the summary include student work and discussion to reinforce the mathematical learning goal of the lesson?

Core Action 3:
Provide all students with opportunities to exhibit mathematical practices while engaging with the content of the lesson.

Discussion Questions

- **What mathematical language will be used in this lesson? How will the teacher support students' use of increasingly precise language, including for English language learners if applicable?**
- **Are mathematical models, mathematical representations, mathematical arguments, and mathematical counter-arguments expected from students, as required by the standards? What problem(s) and question(s) will allow students to share their thinking and/or justify their conclusions?**
- **When will students be doing grade-level problems and exercises? Will all students have this opportunity?**

Student Work Analysis

Lesson: _____

Use this document to record information/evidence from the sample student work. Evidence should consider the Core Actions. Evidence recorded will be integrated into the Feedback Summary worksheet. ***Before analyzing student work, be sure to have first completed the student assignment.***

General notes and observations about the task:

1. **Which standard(s) and/or cluster(s) are targeted in this assignment? Are they grade-level standards?**

2. **What is the mathematical purpose of the assignment?**

3. **What aspect(s) of Rigor (conceptual understanding, procedural skill and fluency, and application) does the assignment address? Explain.**

Analyzing individual student samples (worksheet on next page):

1. **What does the student's work demonstrate about his/her understanding of the expectations of the assignment?**

2. **What does the student's work demonstrate about his/her proficiency with the requirements of the targeted standard?**

(See worksheet)

Student Work Analysis Worksheet

Student Work Sample	What does the student's work demonstrate about his/her understanding of the expectations of the assignment?	What does the student's work demonstrate about his/her proficiency with the requirements of the targeted standard?
Student A		
Student B		
Student C		
Student D		

Note: For a collection of more than four samples of student work, print this page multiple times.

After looking at student work:

1. **How did the directions and/or prompts for the assignment allow students to demonstrate the requirements of the targeted standard(s)?**

2. **How did the mathematical content of the assignment allow students to demonstrate the requirements of the targeted standard(s)?**

3. **What patterns do you notice in the student work?**
   - **What did students do consistently well?**
   - **Were there any common errors?**

Feedback Summary

Lesson: _____

Using the completed Instructional Practice Guide, the Lesson Plan Analysis, and Student Work Analysis, consider the aggregate strengths and considerations for the lesson. Choose relevant Beyond the Lesson questions to guide longer-term reflection.

Evidence of the Shifts and standards-aligned practice	Areas where alignment to the Shifts and standards can improve
Core Action 1: Ensure the work of the enacted lesson reflects the Focus, Coherence, and Rigor required by the college- and career-ready standards in mathematics.	
Core Action 2: Employ instructional practices that allow all students to learn the content of the lesson.	

Evidence of the Shifts and standards-aligned practice	Areas where alignment to the Shifts and standards can improve
Core Action 3: Provide all students with opportunities to exhibit mathematical practices while engaging with the content of the lesson.	
Beyond the Lesson ***Choose relevant Beyond the Lesson questions to guide longer-term reflection.***	

Implications and Next Steps