Mathematics

Materials Packet

Side-by-Side Comparison of Robinson's Capabilities and Leithwood's Leadership Pathways

Robinson's Three Capabilities (Finer-grained Knowledge, Skills and Dispositions)[1]	Attributes	Leithwood's Three of Four* Leadership Pathways[2]	Attributes
Building Relational Trust	**Develop the trust that is essential for doing the hard work of improving teaching and learning (can't achieve much on your own), engage others in the work that delivers for learners; respect (valuing the ideas of others), trustworthiness, competence, and integrity**	**Emotions Path (emotions direct cognition)**	**Commitment, networking between staff, teacher efficacy, collective efficacy (leads to persistence), stress, trust, morale**
Applying Relevant Knowledge	**Deepen teacher knowledge, develop expertise to do the work, using knowledge about effective teaching, teacher learning, and school organization to make high-quality administrative decisions**	**Rational Path**	**Quality of instruction, student learning (standards), curriculum, problem-solving capabilities, "technical core", establishing high expectations, shared goals about academic achievement, orderly environment**
Solving Complex Problems	**All about context specific to each school, take many conditions into account for making decisions, discern challenges and craft solutions that adequately address them**	**Organizational Path**	**School infrastructure, professional networks, structures to support collaboration, instructional time, complexity of teachers' workload, opportunities for teachers' growth, time devoted to instruction**

*Family Path Not Included

[1]Robinson, V., (2011). *Student-Centered Leadership.* 22-38.
[2] Leithwood, K. et al. (2012). *School Leaders' Influences on Student Learning: The Four Paths*. 3-5

Side-by Side (Wiliam & Black with Hattie)

Teacher-student relationships (ES .72) (trust, respect and rapport)

(Wiliam & Black) Formative Assessment (Hattie reports ES .9)	Hattie *Visible Learning*
1. Shared Learning Targets and Criteria for Success • Learning targets are clarified in student friendly language and shared with students • Students are involved in setting success criteria based on learning targets • Students and teachers establish individual learning goals based on learning targets and success criteria	Self-report grades (ES 1.44) Teacher clarity (ES .75)
2. Effective Questioning and Dialogue • Effective questions, learning tasks and discussion techniques moves student learning forward and elicits evidence of student understanding • Rich classroom discussion include various levels of DOK • Adequate wait time is provided for students to respond • Discussions occur in various modes (whole group, partners, peer group) • Teacher utilizes various techniques to engage students in discussions	Questioning (ES .46) with Discussion/Dialogue increases considerably
3. Descriptive Feedback • Oral and written feedback given to students is descriptive, timely and is based on shared criteria • Feedback is used to develop a deeper understanding of students' instructional needs • Teacher uses student feedback to monitor and adjust instruction • Feedback helps student know what they should do next to reach a learning target • Students are given the opportunity to respond and act on the feedback	Feedback (ES .73)
4. Active Peer and Self Assessment • Students are activated as instructional resources for each other • During lessons students are encouraged to reflect on what they have learned and what they need to improve • Students assess each other's work and provide fair and helpful feedback • Students take a portion of the responsibility for monitoring their own progress	Self-report grades (ES 1.44) Reciprocal teaching (ES .74) Self-verbalization and Self-questioning (ES .64)

Comprehensive interventions for learning disabled (ES .77); Comprehension programs (ES .58); Vocabulary programs (ES .67);
Phonics instruction (ES .6); Direct instruction (ES .59); Reading Recovery (ES .50); Principals/school leaders (ES .36); Ability grouping (ES .12);
Class size (ES .21); Whole Language (ES .06); Retention (ES -0.16)
Cohen (1988) hesitantly defined effect sizes as "small .2," "medium .5," and "large .8")

Classroom Observation Protocol: Modes of Engagement for Student Learning	Focus: Facility for Structure and Pacing

Teacher: _____ Grade Level/Subject: _____ Observer: _____ Date: _____

Elements and Indicators	Sequence	Time ( ) Transition	What was observed
1. Teacher-Directed Instruction o Behavioral expectations and routines are understood and demonstrated by students o Teacher provides structure by giving clear, step- by- step instructions including explaining concepts, modeling procedures and leading practice o Teacher utilizes varying levels of questioning to engage students with learning targets during instruction			
2. Student-Focused Learning o Behavioral expectations and routines are understood and demonstrated by students o Discussions led by students (effective techniques are used) o Protocols used to structure discussions o Cooperative learning strategies are embedded in instruction. o Paraphrasing and questions types-clarifying, organizing, mediating-are used o Students apply, analyze, synthesize and/or evaluate information o Teachers facilitate and monitor students to provide feedback and clarification based on learning targets o Transitions between modes of instruction are managed effectively			
3. Independent Learning and/or Guided Practice o Behavioral expectations and routines are understood and demonstrated by students o Teacher provides solicited feedback based on learning targets o Tasks relate to teacher-directed or student- focused instruction o Independent learning and/or guided practice provides students the opportunity to apply, analyze, synthesize or evaluate information o Transitions between modes of instruction are managed effectively			

Total Engagement:	Teacher-Directed = ___ mins.	Student-Focused = ___ mins.	Independent Practice = ___ mins.	Other: ___ mins.

Resources for Modes of Engagement

Consider the following since transitions will be happening between modes of instruction:

Conversation - Under what circumstances can students talk to each other?

Assistance - How do students get their questions answered? How do they get the teacher's attention?

Movement - Under what circumstance can students move about the classroom?

Participation - What student behaviors demonstrate their full participation?

Instruct - Teach students how to behave responsibly

Model - Explain rules, procedures and demonstrate

General Classroom Rules

- Come to class prepared to learn. (Pencils sharpened, pen, paper, and notebooks)
- Respect all property. (School property, personal property, and other's property)
- Respect all ideas given in class and do not criticize anybody's ideas or thoughts.
- Do your very best!

Language Stem Use

Clarifying Thinking - Did you mean…, To what extent…, I would like to know more…, Can you tell/explain a little more…

Extending Thinking - What do you think…, What is another way that you might…, How did you decide…, What additional thoughts or ideas…

Advice giving (permission required) - You need to do it…, The answer is…, The rule to apply is…, You should have…, Why didn't you…

Judgmental (should not be used) - I would not…, That doesn't make any sense to…, Why would you think that… I don't like

Student-Focused Learning Procedures (Non-routine Interactive)

- Listen to the person who is speaking
- Only one person speaks at a time
- No interruption when someone is speaking
- When you disagree with someone, make sure that you make a difference between criticizing someone's idea and the person themselves
- Follow the discussion protocol such as paraphrase, inquire, transition (PIT)
- Encourage everyone to participate

Figure 3.2

Collaborative Team Student Feedback Discussion Tool

Directions: Use your responses to these questions to guide the feedback you would offer students based on their responses on the unit assessment.

1. How did the strategies the student used demonstrate his or her understanding of the essential learning standard the task assesses?

2. How did the feedback you generated build on the student's strengths to address the learning needs for the task?

3. How did the feedback you generated guide the student to understand an error (if you believe there was an error) without being too directive?

4. How did the feedback you generated recognize student effort and accuracy?

5. How did the feedback recognize the Mathematical Practices the student used for the task?

6. In what ways did you provide the feedback in enough time to allow for effective student action?

INSTRUCTIONAL PRACTICE GUIDE: COACHING

MATH	K—8	LESSON
SUBJECT	GRADES	GUIDE TYPE

The coaching tool is for teachers, and those who support teachers, to build understanding and experience with Alaska Standards aligned instruction. Designed as a developmental tool, it can be used for planning, reflection, collaboration, and coaching. The three Shifts in instruction for Mathematics provide the framing for this tool.

The Shifts required by the Alaska Standards for Mathematics are:

- ✓ **Focus:** 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.

The guide provides examples of what implementing Alaska Standards for Mathematics look like in daily planning and practice. It is organized around three Core Actions which encompass the Shifts, instructional practice, and the mathematical practices. Each Core Action consists of individual indicators which describe teacher and student behaviors that exemplify Standards aligned instruction.

The Core Actions and indicators should be evident in planning and observable in instruction. For each lesson evidence might include a lesson plan, problems and exercises, tasks and assessments, teacher instruction, student discussion and behavior, and 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 only a portion of a lesson is observed, leaving some indicators blank. Any particular focus should be communicated between teacher and observer before using the tool. Refer to the Alaska Standards for Mathematics as necessary.

Companion tools for Instructional Practice include:

- Instructional Practice Guide: Coaching (Digital)- a digital version of this print tool, view at achievethecore.org/coaching-tool.
- Instructional Practice Guide: Lesson Planning- designed for teachers to support them in creating lessons. View at achievethecore.org/lesson-planning-tool.

Date

Teacher Name

School

Observer Name

Grade / Class Period / Section

Topic / Lesson / Unit

Standard(s) Addressed in this Lesson

Circle the aspect(s) of rigor targeted in the standard(s) addressed in this lesson[1]:

Conceptual understanding

Procedural skill and fluency

Application

STUDENT ACHIEVEMENT PARTNERS

SUMMARY OF CORE ACTIONS

Core Action 1

Ensure the work of the lesson reflects the Shifts required by the Alaska Standards for Mathematics.

Indicators

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

B. The lesson intentionally relates new concepts to students' prior skills and knowledge.

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

Core Action 2

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

Indicators

A. The teacher makes the mathematics of the lesson explicit by using explanations, representations, and/or examples.

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

C. The teacher strengthens all students' understanding of the content by sharing a variety of students' representations and solution methods.

D. The teacher deliberately checks for understanding throughout the lesson and adapts the lesson according to student understanding.

E. The teacher summarizes the mathematics with references to student work and discussion in order to reinforce the focus of the lesson.

Core Action 3

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

Indicators

A. The teacher poses high-quality questions and problems that prompt students to share their developing thinking about the content of the lesson.

Students share their developing thinking about the content of the lesson.

B. The teacher encourages reasoning and problem solving by posing challenging problems that offer opportunities for productive struggle.

Students persevere in solving problems in the face of initial difficulty.

C. The teacher establishes a classroom culture in which students explain their thinking.

Students elaborate with a second sentence (spontaneously or prompted by the teacher or another student) to explain their thinking and connect it to their first sentence.

D. The teacher creates the conditions for student conversations where students are encouraged to talk about each other's thinking.

Students talk about 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 to precise mathematical language appropriate to their grade.

Students use precise mathematical language in their explanations and discussions.

F. The teacher establishes a classroom culture in which students choose and use appropriate tools when solving a problem.

Students use appropriate tools strategically when solving a problem.

G. The teacher asks students to explain and justify work and provides feedback that helps students revise initial work.

Student work includes revisions, especially revised explanations and justifications.

NOTES

The following pages are provided as a space to record questions, comments, and observations of teacher and student interaction. These notes and related materials (e.g., lesson plan, problems and exercises, tasks and assessments, and student work) will be the basis for the evidence needed to support the ratings for each indicator of the Core Actions on the pages that follow.

NOTES

The following pages are provided as a space to record questions, comments, and observations of teacher and student interaction. These notes and related materials (e.g., lesson plan, problems and exercises, tasks and assessments, and student work) will be the basis for the evidence needed to support the ratings for each indicator of the Core Actions on the pages that follow.

For each indicator, circle the appropriate rating based on what was observed during the lesson. Provide specific evidence to support the rating. Refer to questions, comments, and observations recorded in the preceding notes section.

Core Action 1

Ensure the work of the lesson reflects the Shifts required by the Alaska Standards for Mathematics.

Indicators

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

YES — The lesson focuses only on mathematics within the grade-level standards and fully reflects the depth of the grade-level cluster(s), grade-level content standard(s) or part(s) thereof.

NO — The lesson focuses on mathematics outside the grade-level standards or superficially reflects the grade-level cluster(s), grade-level content standard(s) or part(s) thereof.

B. The lesson intentionally relates new concepts to students' prior skills and knowledge.

YES — The lesson explicitly builds on students' prior skills and knowledge and students articulate these connections.

NO — The lesson contains no meaningful connections to students' prior skills and knowledge.

C. The 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 this lesson:

Conceptual understanding Procedural skill and fluency Application

YES — The lesson explicitly targets the aspect(s) of rigor called for by the standard(s) being addressed.

NO — The lesson targets aspects of rigor that are not appropriate for the standard(s) being addressed.

Core Action 2

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

Indicators [2]

A. The teacher makes the mathematics of the lesson explicit by using explanations, representations, and/or examples.

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.

Not Observed.

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

4 Students are given extensive opportunities to work with grade-level problems and exercises.

3 Students are given opportunities to work with grade-level problems and exercises.

2 Students are given limited opportunities to work with grade-level problems and exercises.

1 Students are not given opportunities to work with grade-level problems and exercises.

Not Observed.

C. The teacher strengthens all students' understanding of the content by sharing a variety of students' representations and solution methods.

4 A variety of student solution methods are shared and examined together to support mathematical understanding for all students.

3 Student solution methods are shared to support mathematical understanding for some students.

2 Student solution methods are shared.

1 Student solution methods are not shared.

Not Observed.

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

Core Action 2 (continued)

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

Indicators

D. The teacher deliberately checks for understanding throughout the lesson and adapts the lesson according to student understanding.

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

Not Observed.

E. The teacher summarizes the mathematics with references to student work and discussion in order to reinforce the focus of the lesson.

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.

Not Observed.

Core Action 3

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

Indicators [4,5]

A. The teacher poses high-quality questions and problems that prompt students to share their developing thinking about the content of the lesson.

Students share their developing thinking about the content of the lesson.

4 The teacher provides consistent opportunities and most students demonstrate this behavior.

3 The teacher provides consistent opportunities and some students demonstrate this behavior.

2 The teacher provides consistent opportunities and few students demonstrate this behavior.

1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed.

B. The teacher encourages reasoning and problem solving by posing challenging problems that offer opportunities for productive struggle.

Students persevere in solving problems in the face of initial difficulty.

4 The teacher provides consistent opportunities and most students demonstrate this behavior.

3 The teacher provides consistent opportunities and some students demonstrate this behavior.

2 The teacher provides consistent opportunities and few students demonstrate this behavior.

1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed.

C. The teacher establishes a classroom culture in which students explain their thinking.

Students elaborate with a second sentence (spontaneously or prompted by the teacher or another student) to explain their thinking and connect it to their first sentence.

4 The teacher provides consistent opportunities and most students demonstrate this behavior.

3 The teacher provides consistent opportunities and some students demonstrate this behavior.

2 The teacher provides consistent opportunities and few students demonstrate this behavior.

1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed.

2. 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.

3. Some portions adapted from 'Looking for Standards in the Mathematics Classroom' 5x8 card published by the Strategic Education Research Partnership (math.serpmedia.org/tools_5x8.html)

4. Some or most of the indicators and student behaviors should be observable in every lesson, though not all will be evident in all lessons.

Core Action 3 (continued)

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

Indicators

D. The teacher creates the conditions for student conversations where students are encouraged to talk about each other's thinking.

Students talk about and ask questions about each other's thinking, in order to clarify or improve their own mathematical understanding.

4 The teacher provides consistent opportunities and most students demonstrate this behavior.

3 The teacher provides consistent opportunities and some students demonstrate this behavior.

2 The teacher provides consistent opportunities and few students demonstrate this behavior.

1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed.

E. The teacher connects and develops students' informal language to precise mathematical language appropriate to their grade.

Students use precise mathematical language in their explanations and discussions.

4 The teacher provides consistent opportunities and most students demonstrate this behavior.

3 The teacher provides consistent opportunities and some students demonstrate this behavior.

2 The teacher provides consistent opportunities and few students demonstrate this behavior.

1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed.

Core Action 3 (continued)

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

Indicators

F. The teacher establishes a classroom culture in which students choose and use appropriate tools when solving a problem.

Students use appropriate tools strategically when solving a problem.

4 The teacher provides consistent opportunities and most students demonstrate this behavior.

3 The teacher provides consistent opportunities and some students demonstrate this behavior.

2 The teacher provides consistent opportunities and few students demonstrate this behavior.

1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed.

G. The teacher asks students to explain and justify work and provides feedback that helps students revise initial work.

Student work includes revisions, especially revised explanations and justifications.

4 The teacher provides consistent opportunities and most students demonstrate this behavior.

3 The teacher provides consistent opportunities and some students demonstrate this behavior.

2 The teacher provides consistent opportunities and few students demonstrate this behavior.

1 The teacher does not provide students opportunity and very few students demonstrate this behavior.

Not Observed.

This tool is for teachers, those providing support to teachers, and all educators working to implement the Alaska Standards for Mathematics – it is not designed for use in evaluation.

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

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Send feedback to info@studentsachieve.net

Classroom Observation Protocol: Using Questioning and Discussion Techniques	Questions for Discussions and Activities

Teacher: _____ Grade Level/Subject: _____ Observer: _____ Date: _____

Elements and Indicators	Record of Questions	Mode of Instruction	DOK Level
1. Quality and Type of Questions Occurring in teacher-directed (TD) or student-focused (SF) modes ✓ Varying levels of questioning are used to guide learning ➢ procedural, recall, factual-Depth of Knowledge- 1 ➢ compare, contrast, apply, consider, expand, evaluate-DOK 2-4 ✓ Questions are related to learning targets ✓ Questions are designed-before instruction-to elicit evidence of student learning			
	What was observed?		
2. Discussion Techniques Occurring in teacher-directed (TD) or student-focused (SF) modes ✓ Teacher utilizes various techniques to engage students in discussions (response cards, whiteboards, think pair share) ✓ Questions are designed to scaffold content in a learning progression ✓ Questions are used by teacher and students to guide discussions ✓ Students assume considerable responsibility for the discussion ✓ Students make unsolicited contributions to class discussions			
3. Think Time / Wait Time ✓ Adequate think time is provided for students or peers to process information ✓ Adequate wait time is provided for students or peers to respond	Interval 1: ____secs., ____secs.	Interval 2: ____secs., ____secs.	

Depth of Knowledge (DOK) Levels (Norman Webb)	
Level 1-Recall (routine cognitive)	Level 2-Skill/Concept (routine analytic)
• Focus is on specific facts, definitions, details, or using routine procedures • Explaining without providing evidence or rationale • Can be challenging without requiring in depth content knowledge to respond to item (memorize a long passage) • Combination of level ones does not equal Level 2 • Typically one correct answer	• Focus is on applying skills and concepts (in a routine or familiar situation), relationships (main idea compare-contrast, cause-effect) • Requires deeper knowledge than offering definition without supporting details • Explanations focus on how or why • Making decisions about information/content • Interpreting in order to respond • Still, usually one correct answer
Level 3-Strategic Reasoning (non-routine analytic)	Level 4-Extended Reasoning (non-routine analytic)
• Requires complex reasoning, planning, and thinking (generally over extended periods of time) for the investigation • Assessment activities have multiple steps with extended time provided • Students may be asked to relate concepts within the content area and among other content areas • Students make real-world applications in novel situations	• Focus is on reasoning and planning in order to respond (write an essay or apply in a novel situation) • Complex and abstract thinking is required might have multiple steps or processes • Often need to provide rational or supporting information for reasoning or conclusions drawn • More than one correct response or approach is often possible and encouraged

INSTRUCTIONAL PRACTICE EVIDENCE GUIDE FOR Alaska Mathematics Standards, K-8

The Instructional Practice Evidence Guide is a tool for observing the effective integration of the Alaska Standards for Mathematics into instructional practice. This tool is intended for use by teachers, coaches and instructional leaders to support the development of Alaska Standards aligned instructional practice. The three key shifts required by the Alaska mathematics Standards are:

1. **Focus:** Focus strongly where the Standards focus.
2. **Coherence:** Think across grades, and link to major topics within grades.
3. **Rigor:** In major topics pursue conceptual understanding, procedural skill & fluency, and application with equal intensity.

When the shifts are effectively integrated into instructional practice, evidence of the following can typically be observed in an individual lesson and over the course of the year.

Teacher: _____ ***Class:*** _____ ***Date:*** _____

Lesson Focus: _____

EVIDENT IN EACH LESSON

1. Materials and instruction support the focus and coherence of the Standards.			
A. All of the mathematical topics in the lesson are explicitly found in the Standards for Mathematical Content (and, more often than not, are in the major work of the grade).	Yes	No	*Notes:*
B. All students are given extensive opportunity to work with grade-level problems and exercises.	Evident	Not Fully Evident	
C. The lesson relates new concepts explicitly to students' prior knowledge and skills.	Evident	Not Fully Evident	
All of the above are true or evident:	***Yes***	***No***	
2. All students grow in their capacity for the three aspects of rigor in mathematics.			
A. *Conceptual understanding:* Students develop their conceptual understanding of key mathematical concepts, where called for in specific content standards or cluster headings.	Evident	Not Fully Evident	*Notes:*
B. *Procedural skills & fluency:* Students learn or practice procedures required by the Standards, and/or work toward fluency in arithmetic.	Evident	Not Fully Evident	
C. *Application:* Students use mathematics in the context of engaging applications.	Evident	Not Fully Evident	
One or more of the above is evident:	***Yes***	***No***	
3. All students practice the discipline of mathematics in grade-appropriate ways.			
During group work and in whole-class discussion…			*Notes:*
A. Students - working individually, in groups, or with the teacher - persevere in solving difficult and worthwhile problems.	Evident	Not Fully Evident	
B. Students construct viable arguments and critique the arguments of others.	Evident	Not Fully Evident	
C. Students explain their thinking and build upon their own and others' thinking.	Evident	Not Fully Evident	
D. Students and the teacher attend to the specialized language of mathematics with precision.	Evident	Not Fully Evident	
All of the above are evident:	***Yes***	***No***	

NOT FOR USE IN EVALUATION

Adapted from
www.achievethecore.org

EVIDENT OVER THE COURSE OF THE YEAR

1. Focus: Students focus strongly where the Standards focus	***Note evidence of how this lesson supports or doesn't support:***
A. Students spend the large majority of their time, approximately three-quarters, on the major work of the grade[1]. B. Students are assessed only on topics that are in the Standards for Mathematical Content for their grade.	
2. Coherence: The lessons and tasks students encounter	***Note evidence of how this lesson supports or doesn't support:***
A. The lessons and tasks students encounter are consistent with the grade level expectations in the Standards. B. The supporting content students encounter reinforces the major work of the grade.	
3. Rigor: Pursue and progress in conceptual understanding	***Note evidence of how this lesson supports or doesn't support:***
A. Students achieve conceptual understanding of key mathematical concepts, where called for in specific content standards or cluster headings. B. Students master all the procedures and reach the fluencies in arithmetic required by the Standards for their grade[2]. C. Students use mathematics in the context of engaging applications.	
4. Student work demonstrates that students meet the content	***Note evidence of how this lesson supports or doesn't support:***
A. Student work shows that students meet the content standards, with particular mastery and rigor in the major work of the grade. B. Students demonstrate – through individual and group work and in whole class discussion – that they apply the standards for mathematical practice in grade-appropriate ways.	

EVIDENT BEYOND THE CLASSROOM

1. The teacher productively collaborates with other teachers[3]	***Note evidence of productive collaboration among teachers:***
A. The teacher collaborates with other teachers to find and develop high quality problems and exercises. B. The teacher collaborates with other teachers to review and analyze student work and develop strategies to improve student learning. C. The teacher collaborates with other teachers to observe and evaluate practice based on the shifts.	

[1] Given the particular clusters that are designated major in grade 7, the criterion for that grade is approximately two-thirds, rather than approximately three-fourths.
[2] Required fluencies chart: http://tinyurl.com/focusinmath.
[3] Particular emphasis on shared responsibility on the part of school leaders for prioritizing teacher collaboration time.

Adapted from
www.achievethecore.org