**AF Elementary Math FOI ‘Look For’ Document**

The purpose of this document is to provide coaches and teachers with a snapshot of the indicators of excellence for the major components of the elementary math program. This document may be used during classroom observations and observation debriefs as a way to assess strength of adherence to the lesson structure and prioritize indicators as growth areas.

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| **Execution Overview:** | | | | | | | | | |
| **Exercise Based Lesson (Grades 2-4)** | | | | | | | | | |
| Introduction | **🡪** | Workshop | **🡪** | Discussion | **🡪** | Independent Practice | **🡪** | Closing & Exit Ticket |
| 15-25 minutes | | 10 minutes | | 5 minutes | | 10-20 minutes | | 5 minutes | |

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| **Game Introduction Lesson (K-2)** | | | | | | | | | |
| Introduction | **🡪** | Workshop | **🡪** | Mid-Workshop Interruption | **🡪** | Discussion | **🡪** | Closure |
| 10-15 minutes | | 15-20 minutes | | 2-3 minutes | | 5-10 minutes | | 3-5 minutes | |

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| **Math Stories** | | | | | | |
| Visualize | **🡪** | Represent & Retell | | | **🡪** | Solve |
| *Minutes vary based on agenda – Early, Middle, Later (see following pages and Elementary Story Problem Guide)* | | | | | | |
| **Math Fluency** | | | | | | |
| ST Math | | | **🡪** | Math Facts in a Flash | | |
| 15 minutes | | | | 10 minutes | | |
| *Grades K/1 do not use MFiaF, therefore the entire fluency block is allocated to ST Math* | | | | | | |

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| **Task Based Lesson (K-4)** | | | | | | | | | | | | |
| Understand | **🡪** | Exploration | | | **🡪** | Discussion | **🡪** | Extension | | **🡪** | Evaluation |
| 3-5 minutes | | 10-12 minutes | | | | 15-20 minutes | | 10-15 minutes | | | 5-10 minutes | |
| *If the task selected requires more exploration time and/or discussion time, the sequence below may be utilized* | | | | | | | | | | | | |
| Understand | | | **🡪** | Exploration | | | | **🡪** | Discussion | | | |
| 3-5 minutes | | | | 20-30 minutes | | | | | 20-32 minutes | | | |

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| **Math Meeting & Number Strings (K-1)** |
| Meeting Based on Bi-Monthly Agendas |
| 15 minutes K/1 |

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| **Friday Cumulative Review (3-4)** | | | | |
| Response to Weekly Exit Ticket Data | **🡪** | Mixed Practice | **🡪** | Discussion |
| 20 minutes | | 20 minutes | | 5 minutes |

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| **Error Analysis Re-teach Lesson** | | | | | | |
| Framing | **🡪** | Error Analysis | **🡪** | Aligned Practice | **🡪** | Exit Ticket |
| 2 minutes | | 5-8 minutes | | 8-10 minutes | | 5 minutes |

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| **Exercise Based Lesson:** Fundamentals of Instruction | | | | | | | | |
| Purpose | * To enable students to make connections, draw conclusions, identify key points and develop deep conceptual understanding through the introduction of a specific concept or skill in a clear and focused fashion with deliberate questioning and carefully selected exercises. * To reveal and develop students’ interpretations of significant mathematical ideas and how these connect to their other knowledge | | | | | | | |
| Must Haves |  | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students use what they know to strategically and productively attack the initial problem with logical and flexible thinking. It is designed to maximize thinking and discourse around the key mathematical ideas and how these connect to their other knowledge. Throughout the remainder of class time students are engaged in a range of problems aligned to the content of the AF S&S and the college ready bar. It is insufficient for students to get the right answer – they must be able to explain how they got it and why it is correct.  THINKING: Scholars spend ≥ 85% of the lesson solving problems or discussing concepts connected to the day’s key points through whole group discussion and / or partner work. Facilitation of discourse is leveraged as a means of helping students process new information, explore patterns and structures as they emerge, and share variations in solution methods in order to strengthen their understanding of the content.  FEEDBACK: Students receive individual and whole group feedback aligned to the key points to deepen their conceptual understanding and to ensure they meet the standards for oral and written scholar work. Feedback is used as a means of progress monitoring to extend student thinking throughout the introduction and discussion.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | | | |
| Time Stamps | **Introduction** | | | **Workshop** | **Discussion** | **Independent Practice** | | **Closing and Exit Ticket** |
| 15-25 min | | | 10 min | 5 min | 10-20 min | | 5 min |
| **Why** | **How Long** | | **What Happens** | | | | **Markers of Excellence** | |
| **Introduction:** Develop meaning through connection making and focus student thinking on prioritized concept and strategy | 15-25 min | | * T gives directions for working on the Intro Problem that are clear and concise * Ss work on Intro Problem with a heterogeneous partner showing grit and using agreed upon partner work habits * T circulates with clipboard and pen-in-hand to collect and respond to data during work time and to prepare for the pathway of the subsequent discussion * T brings the class together and captures what most students have so far on the visual anchor and proceeds to facilitate a discussion based on the data collected:   + If < 2/3 correctly approach the intro problem then teacher uses a funneled questioning sequence beginning at the point of error to elicit the key points and records on the VA   + If > 2/3 correctly approach the intro problem then teacher engages in a show-call using the questioning in the lesson plan to quickly elicit key points and records on the VA * Ss actively participate in class discussion by sharing strategies and understandings related to the problem, asking questions, supporting and refuting their classmates’ thinking, and making connections * (when applicable) T poses the *Try One More* question for students to further solidify or extend their understanding of the key points * Ss engage in the consolidate the learning TT as a final CFU to name the math and strategies for the day – solidifying key points and connecting them to the broader math focus for the day: ex. “Today we are working on \_[what key points]\_\_ by thinking about/doing \_[how key points]\_” | | | | * Students engage in a concise Intro problem designed to illuminate key points and ensure student heavy-lifting. * Ratio of partner work time to class discussion time is inversely proportional and whole class discussion includes multiple students-to-student exchanges * T has anticipated the key strategies and misconceptions for the intro problem and can therefore efficiently gather data to inform the discussion and chosen path * Ss use agreed upon habits of discussion to discuss and explain strategies, representations, connections and reflections, consistently using evidence and precise mathematical vocabulary to support their claims * Ss are able to consolidate the learning in a way that meets the exemplar response and solidifies the key points for the day * T and Ss actions reflect a growth mindset resulting in students willingness to take risks, reflect on one’s own thinking, support and refute classmates’ thinking and ask questions | |
| **Workshop:** Collaborative processing time to continue to develop understanding of prioritized concept and strategy | 10 min | | * T gives clear workshop directions * Ss work in heterogeneous pairs (or individually) on workshop following agreed upon partner work habits * T circulates throughout workshop, pen-in-hand, giving feedback on paper and collecting data to inform the subsequent discussion   + The first minute of workshop: does everyone understand? Are they on task?   + Asking students the pre-planned CFU question(s) connected to the key points   + Intervenes and extends individual students as needed (individually and through the interruption) | | | | * Ss tables (or desks) and materials are organized in the most effective way for them to do the math * Ss show persistence through focused and uninterrupted work time and seek help appropriately, only after attempting to make sense of the work on their own * T circulates effectively and efficiently, using pre-planned CFUs and prompts to support student thinking and learning while also collecting data to inform the upcoming discussion | |
| **Discussion:** Discuss thinking and work completed during Workshop to clarify lingering misconceptions | 5 min | | * T uses workshop data to facilitate a discussion around a major misconception * OR, students share their work/strategies in CPA order * OR, asks students to apply their learning in a new way with an additional exercise (could be a pre-planned written response) * Ss actively engage by asking and answering questions, responding to classmates, explaining strategies, connections and reflections, or writing to explain and apply the learning to their work * Ss apply the learning to their work | | | | * The chosen content and structure of the discussion is applicable to the majority of students based on the data collected during the workshop and is focused on the key points to further student understanding * Ss use agreed upon habits of discussion to discuss and explain strategies, representations, connections and reflections, consistently using evidence and precise mathematical vocabulary to support their claims | |
| **Independent Practice:** Independent processing and internalization of prioritized concept and strategy | 10-20 min | | * Ss independently complete IP following the school wide expectations for work time * T circulates, per-in-hand, to ensure engagement and to provide feedback on paper and collect data * T uses pre-planned questions to CFU students and support the development of their understanding * T conferences with a small group of students (as needed) * T responds to data collected during circulation or plans to respond to data during debrief | | | | * Ss show persistence through focused and uninterrupted work time and seek help appropriately, only after attempting to make sense of the work on their own * T circulates effectively and efficiently, using pre-planned CFUs and prompts to support student thinking and learning * T has uses data appropriately from the workshop to inform the content and structure of the debrief | |
| **Closing & Exit Ticket:** Summarize and assess day’s learning and make connections to big ideas of the unit | 5 min | | * T summarizes the key point or big idea for the lesson, as well as reinforces strong character choices * Ss actively engage by asking questions, and responding to classmates * T assigned exit ticket * Ss complete exit ticket independently | | | | * Debrief is clear and concise, connected to the lesson’s key points and big ideas and allowing adequate time for exit ticket completion | |

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| **Game Introduction Lesson:** Fundamentals of Instruction | | | | | | | | |
| Purpose | * To enable students to make connections, identify and practice multiple strategies, and develop deep conceptual understanding through the introduction of a specific concept or skill in a clear and focused fashion with deliberate questioning and a carefully selected game. * To reveal and develop students’ interpretations of significant mathematical ideas and how these connect to their other knowledge. | | | | | | | |
| Must Haves |  | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students use logical and flexible thinking to play the game – discussing and applying a variety of mathematical strategies. It is designed to maximize thinking and discourse around the key mathematical ideas and how these connect to their other knowledge. It is insufficient for students to get the right answer – they must be able to explain how they got it and why it is correct.  THINKING: Scholars spend ≥ 85% of the lesson solving problems or discussing concepts connected to the day’s key points through whole group discussion and / or partner work. Facilitation of discourse is leveraged as a means of helping students process new information, explore patterns and structures as they emerge, and share variations in solution methods in order to strengthen their understanding of the content.  FEEDBACK: Students receive individual and whole group feedback aligned to the key points to deepen their conceptual understanding and to ensure they meet the standards for oral and written scholar work. Feedback is used as a means of progress monitoring to extend student thinking throughout the mid-workshop interruption and discussion.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | | | |
| Time Stamps | **Introduction** | | | **Workshop** | **Mid-Workshop Interruption** | | **Discussion** | **Closing** |
| 10-15 min | | | 15-20 min | 2-3 min | | 5-10 min | 3-5 min |
| **Why** | **How Long** | | **What Happens** | | | **Markers of Excellence** | | |
| **Introduction:** Develop initial understanding of the concept, the associated strategies, and the game used to practice the concept | 10-15 min | | * T introduces that math: “today in math, we’re working on X by playing Y” * T posts a clear visual anchor naming the steps in kid friendly language with space to record student elicited strategies * T models the game (including material expectations) while referring to the steps on the visual anchor * T asks students to “figure out the math” and articulate the strategies through a pre-planned TT question * T circulates and “hunts” for key strategies to share during the discussion * Ss use agreed upon habits of discussion to participate in class discussion by sharing strategies and understandings related to the game, asking questions and responding to their classmates * T organizes elicited strategies in CPA order on visual anchor * T and Ss play a final round of the game as a final CFU to ensure students are ready for workshop, referring to the visual anchor and the previously elicited strategies * T concludes the introduction with a consolidate the learning TT where students name the math and strategies for the day: ex. “Today we are working on \_[what key points]\_\_ by thinking about/doing \_[how key points]\_” | | | * T has pre-made the visual anchor with clear kid friendly steps for the game and space to add student strategies elicited during the discussion * T models the game NOT the math while consistently referring to the visual anchor to support independence during workshop * T has anticipated the key strategies to elicit during the TT and therefore can efficiently “hunt” and facilitate a discussion * Ss name the strategies to support the co-creation of the visual anchor, consistently using evidence and precise mathematical vocabulary to support their claims: ex. “I used \_\_[strategy]\_\_. It looks like \_\_[explains how to apply]\_\_.” * T and Ss actions reflect a growth mindset resulting in students willingness to take risks, reflect on one’s own thinking, support and refute classmates’ thinking and ask questions  * Ss are able to consolidate the learning in a way that meets the exemplar response and solidifies the key points for the day | | |
| **Workshop:** Collaborative processing time to continue to develop understanding of prioritized concept and strategy | 15-20 min | | * T circulates throughout workshop, pen-in-hand, giving feedback on paper and collecting data   + The first minute of workshop: does everyone understand? Are they on task?   + Asking students the pre-planned CFU question(s) connected to the key points   + Intervenes and extends individual students as needed   + Collecting data to inform the subsequent Mid-Workshop Interruption and Discussion * Ss work in heterogeneous pairs (or individually) on workshop game following school wide expectations for work time | | | * Materials have been organized in an efficient way to distribute * Ss tables (or desks) are organized in the most effective way for them to do the math * Ss show persistence through focused and uninterrupted work time and seek help appropriately, only after attempting to make sense of the work on their own * T circulates effectively and efficiently, using pre-planned CFUs and prompts to support student thinking and learning * T is collecting data to inform the upcoming discussion as well as any need for an interruption | | |
| **Mid-Workshop Interruption:** Teacher names efficient strategies from observations and/or clarifies a shared misconception | * 1. min | | * T brings the class together to respond to data   + If < 2/3 correctly applying strategies then teacher addresses the misconception to clarify and solidify key points   + If > 2/3 correctly approach the intro problem then teacher shares the more efficient strategy to solidify key points and encourage more student to use it * Ss listen and participate by sharing strategies and understandings related to the problem and apply the learning to their work | | | * T interrupts students, requiring 100% of students to stop working and give their full attention * T appropriately uses data from the workshop to inform the decision pathway of the discussion so it is relevant to the majority of students * The workshop is clear and concise, allowing all students to apply the learning to their work when sent back into workshop | | |
| **Discussion:** Summarize the day’s learning, share efficient strategies, clarify misconceptions, and/or apply strategies to a new problem | 5-10 min | | * T using workshop data to facilitate a discussion around a major misconception (< 2/3 successful) * OR, students share their work/strategies in CPA order * OR, asks students to apply their learning in a new way with an additional exercise * T keeps the discussion focused on the aim and the strategies in order to cement key points * Ss actively engage by asking and answering questions, responding to classmates, explaining strategies, connections and reflections, or writing to explain | | | * The chosen entry point and structure of class discussion is applicable to the majority of students based on the data and pushes their understanding of the key points * Ss discuss through multiple peer to peer exchanges in order to explain strategies, representations, connections and reflections, consistently using evidence to support their claims | | |
| **Closing:** As relevant, students complete an exit ticket or skill fluency practice to show evidence of learning | 3-5 min | | * T assigned exit ticket * Ss complete exit ticket independently and without interruption | | | * S maintain focused independent work | | |

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| **Task Based Lesson:** Fundamentals of Instruction | | | | | | | | | | |
| Purpose | * Students make sense of the mathematics they’ve learned by working on a problem solving task and leveraging the knowledge they bring to math class to apply their math flexibly to non-routine, unstructured problems, both from pure math and from the real world. * To shift the heavy lifting to scholars. | | | | | | | | | |
| Must Haves |  | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students use what they know to strategically and productively attack the task during exploration with logical and flexible thinking. It is designed to push students to apply multiple concepts in a new and challenging context in order to maximize thinking and discourse. It is insufficient for students to get the right answer – they must be able to explain how they got it and why it is correct.  THINKING: Scholars spend ≥ 85% of the lesson solving the core tasks or discussing concepts connected to the day’s key points through whole group discussion and / or partner work. Students begin working on the task within the first 5 minutes of class and the facilitation of discourse is leveraged as a means of explore patterns and structures as they emerge, and share variations in solution methods in order to strengthen their understanding of the content. Most of the time and focus of discussion is on the thinking process, progress and reflecting on wrong answers, not on getting the answer.  FEEDBACK: Students receive individual and whole group feedback to deepen their conceptual understanding and problem solving approach. Feedback is used as a means of progress monitoring to extend student thinking throughout the discussion and evaluation.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | | | | | |
| Time Stamps | **Understand** | | **Exploration** | | | **Discussion** | **Extension** | | | **Evaluation** |
| 3-5 min | | 10-12 min | | | 15-20 min | 10-15 min | | | 5-10 min |
| *If the task selected requires more exploration time and/or discussion time, the sequence below may be utilized* | | | | | | | | | |
| **Understand** | | | **Exploration** | | | | **Discussion** | | |
| 3-5 min | | | 20-30 min | | | | 20-32 min | | |
| **Why** | | **How Long** | | | **What Happens** | | | | **Markers of Excellence** | |
| **Understand:** Initial engagement by students to visualize and understand the task and what the solution requires | | 3-5 min | | | * T directs students to carefully read the task or reads the task to students (2-3x) * Ss carefully read and annotate (as appropriate) the problem * T asks students pre-planned questions to demonstrate understanding of the content and prompt of the task (may clarify obscure vocabulary): “What do we need to figure out? What do we know?” * Ss ask and answer questions to clarify understanding * T provides directions for the Exploration | | | | * T asks pre-planned questions to ensure students are understand and are set-up for success without over scaffolding or frontloading * Ss are actively engaged through multiple responses methods and therefore set-up for success during the Exploration | |
| **Exploration:** Aligned to the problem solving approach, students leverage prior knowledge to develop, test, and revise solution strategies | | 10-12 min | | | * T circulates, collecting data on student access and understanding and asking pre-planned CFUs (not providing feedback on papers during this time)   + The first minute of Exploration: does everyone understand? Are they on task?   + Asking students the pre-planned CFU questions to support the development of their understanding, and challenge their thinking * Ss work independently or with partners, following the problem solving protocol and creating a shareable piece of work * Ss engage in discussion with their peers and teacher to make sense of the problem as well as plan and work through a solution pathway * T responds to data collected during circulation or plans to respond during the discussion * T selects the student to present their work during the discussion based on the data collected considering CPA and examples and non-examples | | | | * T circulates effectively and efficiently to collect data and is using pre-planned CFUs and prompts to further student thinking and learning * Ss show persistence through focused and uninterrupted work time and seek help appropriately, only after attempting to make sense of the work on their own * T and Ss actions reflect a growth mindset resulting in students willingness to take risks, reflect on one’s own thinking, support and refute classmates’ thinking and ask questions * Ss are using the problem solving protocol when approaching their work * T selects students to present based on data collected and key mathematical ideas intended by the task while circulating | |
| **Discussion:** Present understanding developed and strategies utilized during Exploration, and make connections to and name new concepts and skills | | 15-20 min | | | * T facilitates presentation by students following the Decision pathways and records student work on visual anchor   + If < 50% correct then teacher engages in a misconception discussion to clarify, surface and solidify key points   + If > 50% correct then teacher engages in a 2-3 share discussion to elicit reflections about and connections between strategies to determine similarities, differences as well as the most efficient or sophisticated * Ss present work while the class listens and asks clarifying questions using precise mathematical vocabulary and evidence to support their claims * Ss analyze the different strategies presented (including examples and non-examples) and use evidences based statements to support claims * Ss engage in a final CFU to name the larger math and strategies that apply beyond this problem | | | | * The chosen entry point and structure of class discussion is applicable to the majority of students based on the data and pushes student understanding of the key points * T facilitates student share, only interrupting with quick clarifying questions to the presenting students or to engage the rest of the class as needed: “Why did you \_\_\_?” or “\_\_\_ what did \_\_\_ do here?” * Ss discuss through multiple student-to-student exchanges to explain strategies, representations, connections and reflections consistently using evidence to support their claims * Ss are able to consolidate the learning in a way that meets the exemplar response and solidifies the key points for the day | |
| **Extension:** Time to apply acquired knowledge by building on or extending concepts and/or skills | | 10-15 min | | | * T introduces an extension problem with a clear purpose: ex. “Now we’re going to try another problem. You will continue to think about \_[what key points]\_ by \_[how key points]\_.” * T circulates, pen-in-hand, giving feedback and collecting data connected to the key points illuminated during the discussion   + The first minute: does everyone understand? Are they on task?   + Asking students the pre-planned CFU questions to support the development of their understanding, and challenge their thinking   + Conferencing with a small group of students (as needed) * Ss work independently or with partners, following the problem solving protocol and creating a shareable piece of work * Ss engage in discussion with their peers and teacher to make sense of the problem as well as plan and work through a solution pathway * T responds to data collected during circulation or plans to respond to data during discussion * T selects the student to present their work during the discussion based on the data collected considering CPA and examples and non-examples | | | | * T circulates effectively and efficiently to collect data and is using pre-planned CFUs and prompts to support student thinking and learning * Ss show persistence through focused and uninterrupted work time and seek help appropriately, only after attempting to make sense of the work on their own * Ss are using the problem solving protocol when approaching their work * T selects students to present based on data collected and key mathematical ideas intended by the task while circulating | |
| **Evaluation:** Assess knowledge development and effectiveness of the lesson | | 5-10 min | | | * T facilitates presentation by 2 students with correct work (teacher choice) using pre-planned questioning to clear up confusion, make connections and solidify key points * T praises strong character * Ss present work while the class listens and asks clarifying questions * Ss analyze the different strategies presented (including examples and non-examples) and use evidences based statements to support claims | | | | * T facilitates student share, only interrupting to ask clarifying questions and engage the rest of the class * Ss discuss and explain strategies, representations, connections and reflections consistently using evidence to support their claims | |

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| **K-2 Math Stories:** Fundamentals of Instruction | | | | | | | | | | | | | | | | | | |
| Purpose | * To enable students to make connections, identify and practice representation and calculation strategies, and develop deep conceptual understanding through the introduction of a specific story problem type in a clear and focused fashion with deliberate questioning and an independent work time * To reveal and develop students’ interpretations of significant mathematical ideas and how these connect to their other knowledge. * To shift the heavy lifting to scholars. | | | | | | | | | | | | | | | | | |
| Must Haves |  | | | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students use what they know to strategically and productively represent and solve the story problem. It is chosen based on data and to maximize thinking and discourse around key mathematical ideas and how these connect to their other knowledge. Students share their thinking process and connect a range of approaches, presented in CPA order.  THINKING: Scholars begin the problem within the first 3 minutes of class and spend ≥ 85% of the lesson representing, solving and discussing concepts connected to the day’s problem. Facilitation of discourse is leveraged as a means of helping students process new information, explore patterns and structures as they emerge, and share variations in solution methods in order to strengthen their understanding of the content.  FEEDBACK: Students receive individual and whole group feedback to deepen their conceptual understanding and problem solving approach. Feedback is used as a means of progress monitoring to inform individual or whole group debriefs of common misunderstandings or to extend student thinking during the Decision point.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | | | | | | | | | | | |
| Time Stamps | **Agenda\*** | | | | | | **Visualize** | | **Represent & Retell** | | | | **Solve** | | | | **Practice\*** | |
| Early | | | | | | 2 min | | 12 min | | | | 6 min | | | | 5 min | |
| Middle | | | | | | 2 min | | 12 min | | | | 6 min | | | | 5 min | |
| Later | | | | | | 2 min | | 18 min | | | | | | | | 5 min | |
| **Why** | | | **How Long** | | | | **What Happens (EARLY)** | | | | **What Happens (MIDDLE)** | **What Happens (LATER)** | **Markers of Excellence** | | | | | |
| **Visualize:** Initial engagement by students to visualize and understand the task and what the solution requires | | | 2 min | | | | * T reads the problem (2-3x) * T models visualization by narrating their mind movie * Ss actively engage by tracking the teacher and emulating visualization | | | | * T and Ss read the problem (2-3x) * Ss visualize by making a mind movie in their heads | | * Problem is clearly posted for students to see * T and Ss read problem slowly and clearly to allow for visualization | | | | | |
| **Represent & Retell:** Students make sense of the problem and show their understanding of the through a representation and retell before engaging a solution strategy | | | 12 min | | | | * Ss and T Act it Out (literal) * Ss represent with manipulatives * T records drawing of student manipulative representations (2-3 students) * Ss engage in TT/WG discussion: how does this represent the story? * T closes with a TT to retell using their representation * 1-2 Ss share their retell | | | | * Ss and T Act it Out (w/cubes/white board; only as needed and no more than 4 times) * Ss represent on white boards * Ss TT to share their representation * T uses data to inform the Decision\*:   + 2-3 Share if >50% correct   + Misconception if < 50% correct   + Intro new representation if > 50% correct, but only 1 representation being used * T charts student work and asks pre-planned TT questions connected to the Decision protocol * Ss TT to retell using their representation * 1-2 Ss share their retell | * S represent on white boards and solve using their representation * Ss TT to share their representation through a retell and how they solved the problem * T uses data to inform the Decision\*:   + 2-3 Share if >50% correct calc strategy   + Misconception if < 50% correct calc strategy   + Intro new calculation strategy if > 50% correct, but only 1 calculation strategy being used * Ss TT to Finish the Story * 1-2 Ss share their Finish the Story | * Ss connect their explanations back to the story in TTs and whole group discussions * Ss discuss representations and strategies through multiple student-to-student exchanges * T has set up clear expectations for TTs, including sentence frames for how to share their work and how to respond to peers: ex. “First I \_\_ b/c in the story \_\_” * T has effective systems for sharing and charting student work to allow access for all students * T encourages early finishers to tell your turtle how you rep/solved; write to explain how you solved; write your answer in a sentence * T appropriately uses data to inform the Decision\* in both Middle and Later agenda so the discussion is relevant for the majority of students * The Decision, including the 2-3 Share has a clear purpose – driving towards a key points | | | | | |
| **Solve:** After making sense of the problem, students apply a calculation strategy to find the solution | | | 6 min | | | | * T and Ss solve together using shared manipulative/picture representation * Ss TT to Finish the Story * 1-2 Ss share their Finish the Story | | | | * Ss solve using their representation * T selects 1 student to share how they solved * Ss TT to Finish the Story * 1-2 Ss share their Finish the Story |
| **Practice:** Addtl. opportunity to apply the day’s learning | | | 5 min | | | | * T presents students with an additional problem to apply the days learning (\*can also be the first 5 minutes of ST Math time) * Ss work through additional problem independently (T may pull small group to “try one more” together as called for in the data) | | | | | | | | | | | |
| **2-4 Math Stories:** Fundamentals of Instruction | | | | | | | | | | | | | | | | | | |
| Purpose | | | * To enable students to make connections, identify and practice representation and calculation strategies, and develop deep conceptual understanding through the introduction of a specific story problem type in a clear and focused fashion with deliberate questioning and an independent work time * To reveal and develop students’ interpretations of significant mathematical ideas and how these connect to their other knowledge. * To shift the heavy lifting to scholars. | | | | | | | | | | | | | | | |
| Must Haves | | |  | | | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students use what they know to strategically and productively represent and solve the story problem. It is chosen based on data and to maximize thinking and discourse around key mathematical ideas and how these connect to their other knowledge. Students share their thinking process and connect a range of approaches, presented in CPA order.  THINKING: Scholars begin the problem within the first 3 minutes of class and spend ≥ 85% of the lesson representing, solving and discussing concepts connected to the day’s problem. Facilitation of discourse is leveraged as a means of helping students process new information, explore patterns and structures as they emerge, and share variations in solution methods in order to strengthen their understanding of the content.  FEEDBACK: Students receive individual and whole group feedback to deepen their conceptual understanding and problem solving approach. Feedback is used as a means of progress monitoring to inform individual or whole group debriefs of common misunderstandings or to extend student thinking during the Decision point.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | | | | | | | | | |
| Time Stamps | | | **Agenda\*** | | | | | | **Visualize** | | **Represent & Retell** | | | | **Solve** | | **Practice** | |
| Middle | | | | | | 2 min | | 8-12 min | | | | 6 min | | 5 min | |
| Later | | | | | | 2 min | | 18 min | | | | | | 5 min | |
| **Why** | | | | | | | **How Long** | | **What Happens (MIDDLE)** | | | | **What Happens (LATER)** | | | **Markers of Excellence** | | |
| **Visualize:** Initial engagement by students to visualize and understand the task and what the solution requires | | | | | | | 2 min | | * T and Ss read the problem (2-3x) * Ss visualize by making a mind movie in their heads | | | | | | | * Problem is clearly posted for students to see * T and Ss read problem slowly and clearly to allow for visualization | | |
| **Represent & Retell:** Students make sense of the problem and show their understanding of the through a representation and retell before engaging in a solution strategy | | | | | | | * 1. min | | * Ss represent on white boards/paper * Early finishers: Write a sentence to tell how you represented; ensure adequate labels; represent another way * Ss TT to share their representation and retell the problem/name what is being solved for   + Should also include partners telling each other what is correct, what needs to be changed – an partners changing their representations as necessary * T uses data to inform the Decision\*:   + 2-3 Share if >50% correct   + Misconception if < 50% correct   + Intro new representation if > 50% correct, but only 1 representation being used * T charts student work and asks pre-planned TT questions connected to the Decision * Ss help to craft the corresponding equation is not a part of the representation shared | | | | * S represent on white boards/paper and solve using their representation * Early finishers: Write a sentence to tell how you represented and solved; write your answer in a sentence; solve another way; use estimation to check that their answer is reasonable; check with the inverse operation * Ss TT to share their representation through a retell and how they solved the problem   + Should also include partners telling each other what is correct, what needs to be changed – an partners changing their representations as necessary * T uses data to inform the Decision\*:   + 2-3 Share if >50% correct calc strategy   + Misconception if < 50% correct calc strategy   + Intro new calc strategy if > 50% correct, but only 1 calculation strategy being used * 1 student shares their answer in a complete sentence | | | * Ss connect their explanations back to the story in TTs and whole group discussions * T has effective systems for sharing and charting student work to allow all students to access * T has set up clear expectations for TTs * T accurately uses data to inform the Decision\* in both Middle and Later agenda so the discussion is relevant for the majority of students * The Decision, including the 2-3 Share has a clear purpose – driving towards a key points | | |
| **Solve:** After making sense of the problem, students apply a calculation strategy to find the solution | | | | | | | 5 min | | * Ss solve using their representation   + Some students may go back and adjust their representations before solving based on what was shared * T selects 1 student to share how they solved * 1 student shares their answer in a complete sentence | | | |
| **Practice:** Additional opportunity to apply the day’s learning | | | | | | | 5 min | | * T presents students with an additional problem to apply the days learning * Ss work through additional problem independently (T may pull small group to “try one more” together as called for in the data) | | | | | | | | | |

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| **\*AGENDAS** | | |
| **IS THE TEACHER OPERATING IN THE APPROPRIATE AGENDA?** | | |
| **Early** | **Middle** | **Later** |
| In the Early stage, students use their listening comprehension skills along with scaffolding from the teacher to visualize the problem. Students also work to represent the problem concretely in this stage. The independent work focus is on representing and retelling. Once they demonstrate the ability to effectively represent with manipulatives and retell the story problem on a consistent basis (at least 2/3 of the students for 3 consecutive days), move to the Middle agenda. Early Agenda is used most often in K and should be used sparingly in other grades. | *Middle*: In the Middle stage, students are visualizing independently as well as representing on paper/whiteboards. The focus is on efficient ways to represent (moving from manipulatives to 1:1 drawing, to 1:1 tape diagram, to tape diagram, to bar model; with number sentences entering at different times pending the story problem type). Complex story problems generally require us to represent in more complex/abstract ways. Once students demonstrate the ability to effectively represent on whiteboards in the ways noted in the S&S for that grade/month/story problem type (at least 2/3 of the students for 3 consecutive days, without using Act It Out), move to the Later agenda. Also note, it is likely that with multi-step problems in 4th grade, the representation is harder than actually calculating the answer – thus 4th grade teachers may return to and live out the year in the middle agenda. | *Later*: In the Later stage, students are responsible for all aspects of the story problem protocol. The teacher still prompts the group, but students visualize, represent and retell, and solve on their own. By focusing on the representation in the Early and Middle stages, this stage should get to focus on the solution strategy (calculation). If you are working in this stage and students are struggling to represent, back up to the Middle or Early agenda. If at least 2/3 of your students are successful for 3 consecutive days, you should move ahead in the story problem S&S. |

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| **\*THE DECISION** | | |
| **DID THE TEACHER MAKE THE RIGHT DECISION BASED ON THE DATA?** | | |
| **Share 2-3 Reps/Calcs** | **Introduce a *New* Rep/Calc** | **Misconception Discussion** |
| Rationale: When more than ½ of the students are representing or calculating correctly and a few strategies are observed, it is a good time to share the various reps/calcs in order of sophistication to encourage students to use more efficient/sophisticated reps/strategies or call out a larger mathematical idea that is critical for students to understand. | Rationale: When more than ½ of the students are representing or calculating correctly, but only one strategy is being used (and students have worked on this agenda/story problem type for a week or more), it is a good time to introduce a new rep/calc to encourage students to use more efficient/sophisticated reps/strategies.  \*Note: When introducing a new calculation strategy, it’s showing one that kids have seen/used in math class, and just aren’t applying in math stories | Rationale: When less than ½ of the students are representing or calculating correctly, it is a good time to pause and discuss the misconception. |
| Protocol:   * 2-3 students share their rep/calc in order from least to most sophisticated/efficient (show completed to students; teacher recreates as student shares) * Rep: “First I put \_\_ because in the story \_\_\_. Then I put \_\_\_ because in the story \_\_\_\_. Finally, I put \_\_\_\_ because in the story/we need to figure out \_\_\_\_.” * Calc: Naming the steps in the calculation – I counted all of them, I counted on like this, I wrote the numbers in expanded notation, I drew an array model, etc. * If a student skips a portion of their explanation, point to what you’ve recreated so far – “I have this – what comes next?” * WG/TT – Specific question to draw out a key point (could be ‘what’s the same/different about these reps’ or relating add to sub, ‘how did they start with different amounts but still get the same answer’, etc. | Protocol:   * Intro a *New* Rep – and they’ve seen it in math class   + Share 1-2 reps that will connect to the rep being introduced   + “Let’s see if we can come up with another way to represent this”   + “I’m thinking about something I’ve seen you do in math class when working on \_\_\_\_. Anyone have ideas?”   + Student shares intended rep   + All students try to use that rep   + 1 student shares with the group - successfully using the rep   + “Cool, so now you have another rep you could use!” * Intro a New Rep – and they’ve never seen it   + Share 1-2 reps that will connect to the rep being introduced   + “Let’s talk about this rep I saw a kid do last year” (Introduce using the sentence frame kids use – and recreate as you share)   + TT: How does this rep show the same thing as the rep you guys used?   + 1 Student shares (add in missing key points)   + “Cool, so now you have another rep you could use!” | Protocol:   * 1 Correct student shares * 1 Incorrect student shares * TT: which reps the story? which calculation correct? * WG discussion: what is incorrect? Why doesn’t x work? (connect to the story as needed) * Individual “fix-it” time for any students that need to * 1 Previously Incorrect and now Correct student shares his/her correct work |

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| **Friday Cumulative Review:** Fundamentals of Instruction | | | | | | | |
| Purpose | To facilitate the making of connections and build fluency or solidify understandings of the skills and concepts students have acquired throughout the week, as well as to revisit strategic topics. | | | | | | |
| Must Haves | C:\Users\GennaWeinstein\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\FEEDBACK_ICON_BLACK.PNG | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students engage in a range of problems aligned to the content of the AF S&S and the college ready bar. It is insufficient for students to get the right answer – they must be able to explain how they got it and why it is correct.  THINKING: Scholars spend ≥ 85% of the lesson engaging in math problems independently or with a partner. Facilitation of discourse is leveraged as a means of helping students process new information, explore patterns and structures as they emerge, and share variations in solution methods in order to strengthen their understanding of the content.  FEEDBACK: Students receive individual and whole group feedback to deepen their conceptual understanding. Feedback is used as a means of progress monitoring to inform individual or whole group debriefs of common misunderstandings or to extend student thinking during the discussion.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | | |
| Time Stamps | **Response to Exit Ticket Data** | | | **Mixed Practice** | | **Discussion** | **Mixed Practice Continued** |
| 20 min | | | 10 min | | 5 min | 10 min |
| **Why** | **How Long** | | **What Happens** | | **Markers of Excellence** | | |
| **Response to Weekly Data:** Opportunity to address weekly exit ticket data through individualized or whole group support | 20 min | | * T determines structure based on data that may include one or all of the following:   + Small/Whole group Error Analysis Re-teach (see Error Analysis Re-teach FOI for more details on structure)   + Individual (or partner) exit ticket re-do   + Partner extension work * T gives clear directions for the work time, including what each student is working on, the necessary materials, and expected outcomes * Ss engage in a re-teach lesson, re-do or extension based on need * T closes out component with a character shout-out and transitions students to Mixed Practice | | * T has uses data to strategically inform the structured response, ensuring that the time is differentiated based on need * Materials have been organized in an efficient way to distribute * Ss tables (or desks) are organized in the most effective way for them to do the math * Ss are on task 100% of the work time * T and Ss actions reflect a growth mindset resulting in students willingness to take risks, reflect on one’s own thinking, support and refute classmates’ thinking and ask questions | | |
| **Mixed Practice:** Students practice targeted review independently | 20 min | | * T distributes materials and gives directions for independent work time * Ss complete IP following the school wide expectations for work time * T circulates with pen, completed version of CR, and tracker in hand noting struggling students and difficult questions and giving praise and encouragement (compliance, hard work, specific math thinking) * Ss show strong stamina habits, showing work, double checking and correcting work marked by the teacher * T intervenes for 15-30 seconds with individuals to clarify partial misunderstandings and to give feedback on paper | | * T has planned the highest leverage problems at various levels of rigor given the S&S and their data. * T has the completed mixed practice in hand in order to ensure efficiency of feedback * Ss are capable of practicing the problems with little to no instruction from the teacher * Ss are on task 100% of the work time * Ss show persistence through focused and uninterrupted work time and seek help appropriately, only after attempting to make sense of the work on their own * Ss react positively and with urgency to teacher feedback | | |
| **Discussion:** Students discuss one problem and common misconceptions or various solution strategies used | 5 min | | * T leads a discussion mid-practice about a specific problem based on data collected throughout work time * T uses one of the following approaches based on data: * Approach #1: Exemplar response   + Calling on student with correct response and a strategy that meets the needs of most students   + Asking Qs to CFU both concept and procedures   + Quickly re-CFUing by changing numbers or having students synthesize key learning * Approach #2: Common Misconception   + Show calling a common error   + Prompting students to name the error   + Quickly re-CFUing by changing numbers or having students synthesize key learning | | * T uses high ratio moves to increase engagement and heavy lifting (i.e. everybody writes, turn and talk, cold call, whole class CFU). * T and Ss actions reflect a growth mindset resulting in students willingness to take risks, reflect on one’s own thinking, support and refute classmates’ thinking and ask questions * Ss defend or refute their own and their peer’s answers orally with evidence to support their claims | | |

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| **Number Strings:** Fundamentals of Instruction | | | | | | |
| Purpose | To engage in grade level appropriate mental math in order to authentically build stronger number sense and develop fluency over time. | | | | | |
| Must Haves | C:\Users\GennaWeinstein\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\FEEDBACK_ICON_BLACK.PNG | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students use what they know to apply logical and flexible thinking to approach each string. Each string is chosen to maximize thinking and discourse around key mathematical ideas that support fluency with calculations. Students share their thinking process and connect a range of approaches.  THINKING: Facilitation of discourse is leveraged as a means of helping students process new information, explore patterns and structures as they emerge, and share variations in solution methods in order to strengthen their understanding of the content.  FEEDBACK: Students receive individual and whole group feedback to deepen their conceptual understanding and to ensure they meet the standards for oral explanation. Feedback is used as a means of progress monitoring to inform whole group debriefs to extend student thinking.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | |
| Time Stamps | **Present the Problem** | | | **Apply the Strategy** | | **Closing** |
| 5 min | | | 8 min | | 2 min |
| **Why** | **How Long** | | **What Happens** | | **Markers of Excellence** | |
| **Present the Problem**: Develop initial understanding of the concept associated the number string for the day | 5 min | | * T poses the initial problem and asks student to solve mentally, putting a thumb up against their chest when they think they have an answer * T waits until most students have an answer, reminding students that speed is not necessary * T poses a TT, asking students to share with a heterogeneous partner their answer and how they got it: ex. “I got \_\_\_. I figured it out by \_\_\_.” * Ss are actively engaged in discussion, agreeing / disagreeing with their peer and following school wide expectations for TTs * T “hunts” for strategies aligned to the “math behind the string” for the day * T calls on 2-3 students to share their answer and how they got it while charting the strategy exactly as the student describes * Ss participate in class discussion by sharing strategies and understandings related to the problem, asking questions and responding to their classmates * T asks students to restate / explain key concept or strategy through a TT – “How did \_\_\_ solve this problem again?” * T marks the key concept or strategy before moving on to additional problems: ex. “Wow – there are a lot of ways you might have used to solve this problem. For this next one, I want us to see if we can use \_\_\_\_’s strategy.” | | * T has a clear vision for the “math behind the string” and is able to use that to inform student strategies to share, as well as to mark the concept before moving on to additional problems * T has an effective system for charting student strategies in a way that is accessible both visually and conceptually for the rest of the group * T values a wide range of strategies and celebrates and encourages flexible thinking at all times * Ss consistently tell their answer in addition to how they got it (their strategy) through clear and precise explanations * T only interrupts to clarify student explanation or engage the group * Ss discuss and explain strategies, connections and reflections, consistently using evidence to support their claims | |
| **Apply the Strategy:** Students engage in more at-bats to apply the concept behind the string | 8 min | | * T poses 2-3 more problems, asking student to solve mentally, putting a thumb up against their chest when they think they have an answer * T waits until most students have an answer, reminding students that speed is not necessary * T poses a TT, asking students to share with a heterogeneous partner their answer and how they got it * Ss are actively engage in discussion, agreeing / disagreeing with their peer and following school wide expectations for TTs * T “hunts” for strategies aligned to the previously highlighted strategy and gathers data students’ ability to success apply it * T calls on 2-3 students to share their answer and how they got it while charting the strategy exactly as the student describes * Ss participate in class discussion by sharing strategies and understandings related to the problem, asking questions and responding to their classmates | |
| **Closing:** Consolidate the learning and how they may apply it moving forward | 2 min | | * T restates the key concept or strategy applied to the numbers strings for the day, referring to the charted work * Ss engage in a consolidate the learning TT where they name the concept or strategies for the day and solidify key points * T names when students might apply their learning next: ex. “We are going to practice this strategy some more tomorrow during our math talks” or “I want you to keep this strategy in mind when we get to math class later today!” | | * TT question is clear and connected to the key concepts or strategies, requiring all students to restate and solidify their learning | |

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| **Error Analysis Re-teach:** Fundamentals of Instruction | | | | | | |
| Purpose | To allow students to analyze and discuss student errors and misconceptions in order to build deeper understanding of the concepts.  Lessons are devoted to concepts and skills for which students have previously demonstrated unacceptable levels of mastery (<65%). | | | | | |
| Must Haves | C:\Users\GennaWeinstein\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\FEEDBACK_ICON_BLACK.PNG | INVESTMENT: Student growth mindset is front-and-center. All students are willing and excited to take risks, share their thinking, and contribute meaningfully throughout all parts of the lesson. Students embrace challenge and work together to support the group’s learning.  RIGOR of CONTENT / TASK: Students use what they know to analyze and critique student work – both explaining why a piece of work is correct and why a piece is incorrect, naming the point of error. The student work is chosen to maximize thinking and discourse around the key mathematical ideas and chosen growth area. Throughout the class time students are engaged in problems aligned to the growth area and AF S&S and the college ready bar.  THINKING: Scholars spend ≥ 85% of the lesson engaging in math problems independently or with a partner. Facilitation of discourse is leveraged as a means of helping students make sense of content where there were previous misconceptions.  FEEDBACK: Students receive individual and whole group feedback to deepen their conceptual understanding and to ensure they meet the standards for oral and written work. Feedback is used as a means of progress monitoring to inform individual or whole group debriefs during the error analysis.  FOCUS: Students sustain focus and strong scholar habits during partner work time, class discussion and independent work time. There is a sense of ownership over their learning, pushing themselves by asking and answering questions and supporting and leveraging their peers throughout the lesson. | | | | |
| Time Stamps | **Framing** | **Error Analysis** | | **Aligned Practice** | | **Exit Ticket** |
| 2 min | 5-8 min | | 8-10 min | | 5 min |
| **Why** | | **How Long** | **What Happens** | | **Markers of Excellence** | |
| **Framing:** Frame includes culture conversation about scores, importance of content, malleable intelligence, and perseverance | | 2 min | * T frames the days lesson with a reminder of the importance of learning from mistakes and the character skills / habits they hope to see today | | * T framing is authentically delivered in a way that will invest students and continue to build a culture of growth mindset around the mathematical work | |
| **Error Analysis:** Student analyze an example and non-example in order to clarify misconceptions and deeper understanding | | 5-8 min | * T places chosen student work under the document camera that targets misconception, errors and/or poorly shown work * T poses TT: “Which student work is correct and how do you know?” * Ss are engaged in analyzing work and explaining targeted growth area * T “hunts” for responses and facilitates a discussion, prioritizing calling on kids who made a similar mistake but may have clarified their thinking through the TT * T poses TT and facilitates discussion: “What should this student do in the future to not make mistakes like this again?” * T poses TT to have Ss synthesize key learning from analysis * T records on error-filled example and sets students up for independent work time with a reminder of what they should be thinking about as the work today (aligned to growth area) | | * T has pre-identified the student work they will show based on targeted growth area (they may photocopy and include in student work packets) * T has clear exemplar responses planned for TT questions and effectively “hunts” for responses * Ss engage in a discussion that will result in clarified understanding of the targeted growth area * T and Ss actions reflect a growth mindset resulting in students willingness to take risks, reflect on one’s own thinking, support and refute classmates’ thinking and ask questions | |
| **Aligned Practice:** Practice engages students in continued thinking about growth area through solving problems, analyzing work, and written explanations | | 8-10 min | * T circulates, pen-in-hand, giving feedback and collecting data   + The first minute: does everyone understand? Are they on task?   + Then, asking students the pre-planned CFU questions to intervene, challenge and extend individual student thinking as needed * Ss work independently, applying their learning from the Error Analysis | | * Materials have been organized in an efficient way to distribute * T has the completed practice in order to ensure efficiency of feedback * Ss tables (or desks) are organized in the most effective way for them to do the math * Ss show persistence through focused and uninterrupted work time and seek help appropriately, only after attempting to make sense of the work on their own | |
| **Exit Ticket:** Assess student’s ability to solve problems involving previously misunderstood or misapplied concept or skill. | | 5 min | * T brings students back and shares out an exemplar piece of student work based on growth area (ideally a student who had made the mistake earlier) and celebrates learning from mistakes * T distributes exit ticket * Ss independently complete the exit ticket | | * Debrief is clear and concise, connected to the growth area and allowing adequate time for exit ticket completion * S independently complete exit ticket independently | |