The eight Mathematical Practices are a critical part of students' mathematics learning. Mathematical Practice Notes are included throughout the unit to indicate opportunities for engaging students in these practices. Each unit focuses specifically on two Mathematical Practices.

In this unit, the highlighted practices are MP1, Make sense of problems and persevere in solving them, and MP8, Look for and express regularity in repeated reasoning. This essay describes each of these practices and provides examples from the unit of how to engage Grade 1 students in them.

MP1 Make sense of problems and persevere in solving them.

> Mathematically proficient students at the elementary grades explain to themselves the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. For example, young students might use concrete objects or pictures to show the actions of a problem, such as counting out and joining two sets to solve an addition problem. If students are not at first making sense of a problem or seeing a way to begin, they ask questions that will help them get started. As they work, they continually ask themselves, "Does this make sense?" When they find that their solution pathway does not make sense, they look for another pathway that does. They may consider simpler forms of the original problem . . . Once they have a solution, they look back at the problem to determine if the solution is reasonable and accurate. They often check their answers to problems using a different method or approach.
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> Mathematically proficient students consider different representations of the problem and different solution pathways, both their own and those of other students, in order to identify and analyze correspondences among approaches. They can explain correspondences among physical models, pictures or diagrams, equations, verbal descriptions, tables, and graphs.
>
> (Illustrative Mathematics, *Standards for Mathematical Practice: Commentary and Elaborations for K–5)*

From the moment students enter first grade, the teacher works to establish a classroom community that engages them in MP1: Make sense of problems and persevere in solving them. Classroom Routines and Math Workshop provide regular structures in which students are expected to make sense of the numbers, shapes, and quantities they encounter. Students are encouraged and expected to share their thinking and listen to the ideas of others, to pose and answer questions, and to explore and become familiar with mathematical tools deliberately selected to highlight the mathematical concepts to be pursued throughout the year.

The story problem routine introduced in this unit and used throughout Grade 1 is designed to help students make sense of various types of addition and subtraction. Consider the following scenario:

Teacher: I'm going to read the problem again. This time, as I read, I want you to close your eyes and make a picture in your head of the story. *I was cleaning the classroom. I saw 5 pencils on the floor. I saw 6 pencils under the window. How many pencils did I see?* I don't yet want to hear the answer to the question. First I want to hear what the story is about. Who can tell the story?

Paula: You saw 5 pencils and 6 pencils.

Stacy: You were cleaning the classroom.

Neil: There were 5 pencils on the floor and 6 under the window.

Teacher: What is the question I asked?

Teo: How many pencils did I see?

Teacher: How many pencils did I see? Close your eyes again and picture it. Did I see more than 5 or less than 5?

Several students: More.

Teacher: You agree there were more than 5 pencils. How are you sure that it must be more than 5?

Marta: There were 5 and 6. Put together, it's more than 5.

Jacob: There were 5 on the floor. If you put on more, it's more than 5.

Teacher: Now I want all of you to solve the problem. You should work on your own, but you can discuss your ideas with a partner.

Story problems that involve putting together two sets—such as finding the total number of pencils when 5 are on the floor and 6 are under the window—lay the foundation for students' understanding of addition. Story problems that involve removing one set from another provide contexts for learning about subtraction. When students visualize what happens in the story, they begin to associate images of joining with addition and images of separating with subtraction.

The structure of the routine builds the expectation that solving a problem takes time; you have to think through the problem and figure out what is given and what question is asked, before you start to act on the numbers. The routine established in this unit will continue to serve students as they encounter more challenging story problems later in Grade 1 (e.g., problems with change unknown or start unknown) and in later grades.

In addition to making sure students can interpret the story and think about the quantities, questions about whether the story results in more or fewer pencils (or balloons, or children, . . .) than at the start help students anticipate characteristics of the answer. Once they solve the problem, they can consider their solution in relation to what they anticipated. Developing the habit of asking this question—given the context of the problem, what do I know about the answer?—is an essential component of MP1: Make sense of problems and persevere in solving them.

The following chart shows where Mathematical Practice Notes specifically address MP1 and when that mathematical practice is assessed.

MP1 Make sense of problems and persevere in solving them.

SESSION	MPN	ASSESSMENT CHECKLIST
1.1	●	
1.2	●	
2.3	●	
2.4		●
2.7		●
2.8	●	
3.1	●	
3.2	●	●
3.4		●
3.6		●
3.7		●