

## Appendix B: Team Checklist and Questions for Mathematics Unit Planning

Your team can use the following checklists to summarize what members should do to complete each part of the Mathematics Unit Planner in figure 1.2 (page 11). (See also the Mathematics Unit Planner and calendar in the *Mathematics at Work Plan Book* [Kanold & Schuhl, 2020, p. 30].)

### Checklist for Mathematics Unit Planning

#### 1 Generate Essential Learning Standards

- ☐ Unwrap state standards into daily learning targets by determining what students must know and be able to do.
- ☐ Rewrite standards in student-friendly language to generate essential learning standards for assessment and reflection.
- ☐ Identify which state standards in the unit are need-to-know or important-to-know standards.
- ☐ Create three to six essential learning standards for a unit.
- ☐ Determine what students must know and be able to do to be proficient on each standard.
- ☐ Use essential learning standards as the driver for feedback on common assessments, classwork, independent practice, and intervention as a collaborative team.
- ☐ List essential learning standards in the Mathematics Unit Planner for teachers and students to reference.

#### 2 Create a Unit Calendar

- ☐ Determine the start and end dates for the unit.
- ☐ Determine the dates to administer any common mid-unit and end-of-unit assessments.
- ☐ Determine each date your team will analyze data from any common mid-unit and end-of-unit assessments to plan a team response to student learning.
- ☐ Determine when students will learn the essential learning standards. Identify the daily learning targets to address each day (teachers plan their own lessons for the targets, which align to the essential learning standards), so your team collectively

determines how to grow student learning throughout the unit.

- ☐ Consider any holidays, in-service days, field trips, assemblies, or other events that might impact the unit and, as a team, clarify and emphasize what is most critical for students to learn in the unit.
- ☐ Consider building in a flex day for your team to use as a response to student learning after a common mid-unit assessment.

#### 3 Identify Prior Knowledge

- ☐ Determine the recent prerequisite standards students have learned that they need to access the grade- or course-level content in the current unit.
- ☐ Summarize each prior-knowledge standard and add it to the Mathematics Unit Planner.
- ☐ Determine mathematical tasks students will use to access their prior knowledge at the start of lessons and then throughout the unit. Use these tasks on a short preassessment to determine whether students have learned the skills and to provide feedback to your team and students.

#### 4 Determine Vocabulary and Notations

- ☐ Identify the academic vocabulary students will be reading and using in discourse and their work throughout the unit. Include the vocabulary in the Mathematics Unit Planner.
- ☐ Identify any mathematical notations students will need to read, write, speak, and use during the unit. Include the mathematical notations in the Mathematics Unit Planner.
- ☐ Determine how students will make sense of and practice using the academic vocabulary and notations throughout the unit.

## 5 Identify Resources and Activities

- ☐ Determine which lessons in the team's current curriculum materials align to the essential learning standards in the unit.
- ☐ Determine examples of higher- and lower-level tasks students must engage in to fully learn each essential learning standard.
- ☐ Identify any meaningful explorations, activities, or projects to use across the team to help students learn the essential learning standards.
- ☐ Determine any supplemental materials students need to fully learn the essential learning standards.
- ☐ Identify mathematics tasks the team will use in the Mathematics Unit Planner.

## 6 Agree on Tools and Technology

- ☐ Determine any manipulatives or technology students need to learn the essential learning standards.
- ☐ Identify whether the tools and technology in the unit will support student learning of the essential learning standards with a focus on conceptual understanding, application, or procedural fluency.
- ☐ Identify which tools and technology, if any, will be part of instruction or available for common assessments.

## 7 Record Reflection and Notes

- ☐ When planning the unit, record notes of things to remember when teaching by considering questions such as, When should students use manipulatives? How will students write their thinking and use notations? What are the expectations for student work when they draw a graph on a coordinate plane? Which strategies should we use? After the unit, reflect on the unit instruction and assessments your team would like to keep or change next year. Record ideas to use when planning the unit next year.
- ☐ When completing these checklists for each mathematics unit, your team may want to also answer the following questions to generate quality team discussions related to the mathematics unit plan and its use for further team planning.

## Questions for Mathematics Unit Planning

### 1 Team Questions to Generate Essential Learning Standards

- Which standards in the unit are need-to-know standards and important-to-know standards? Why?
- What are the three to six essential learning standards (the team rewrites in student-friendly *I can* language) for this unit?
- What do the state standards say a student must know and be able to do to be proficient on each essential learning standard?
- When will students learn each essential learning standard during the unit?
- How will your team share the essential learning standards with students at the start of the unit, during the unit, and as feedback after common assessments?
- What are examples of tasks that clarify each essential learning standard?

### 2 Team Questions to Create a Unit Calendar

- When does the unit start and end?
- When will you give any common mid-unit assessments? Common end-of-unit assessment?
- When will your team analyze data from each common assessment?
- What is the story arc of learning using daily targets from essential learning standards?
- What dates, if any, will be flex days for student re-engagement?
- Which dates, if any, are holidays, professional development days, or days not allocated for instruction?

### 3 Team Questions to Identify Prior Knowledge

- What have students previously learned (this year or during a prior year) that they need to learn each essential learning standard in this unit?

- How will your team access students' prior knowledge during the unit?
- What are examples of tasks or activities to use to activate students' prior knowledge needed for lessons in this unit?
- What is your team plan to address the needs of students who have not yet learned the prior knowledge they need to learn the essential learning standards in this unit (without removing students from learning grade-level standards)?

### 4 Team Questions to Determine Vocabulary and Notations

- What are the academic mathematics vocabulary words students must read, speak, and use during this unit to be proficient with the essential learning standards?
- Which mathematical notations will students need to be able to read, write, speak, and use during this unit to be proficient in the essential learning standards?
- How will students learn and repeatedly practice reading, writing, speaking, and listening to the mathematical vocabulary and notations in the unit?

### 5 Team Questions to Identify Resources and Activities

- Which lessons in your textbook can your team use to teach the essential learning standards?
- Which tasks in your textbooks can be used to teach the essential learning standards?
- What supplemental materials, if any, does your team need? Where can you access them?
- What are examples of higher- and lower-level tasks students need to be able to do?
- What activities or explorations can your team use to help students develop conceptual understanding of the essential learning standards?

## 6 Team Questions to Determine Tools and Technology

- Which tools or manipulatives do students need to develop conceptual understanding of the essential learning standards?
- How will your team scaffold use of tools or manipulatives (if needed) for students to solve tasks using tools, drawing pictures, and writing equations?
- What technology (hardware) does your team need to advance student learning of essential learning standards?
- Which programs (software) or sites does your team need to advance student learning of essential learning standards?

## 7 Team Questions to Record Reflection and Notes

- As your team plans the unit, what do you want all members to remember and record so individual teachers can reference the plan while teaching the unit?
- Which mathematical strategies will your team agree to use to help students learn?
- After the unit, what did your team decide worked well and want to replicate next year?
- After the unit, what did your team decide needs to be revised or changed next year to better grow student learning?
- What will your team need to emphasize next year to close holes in student learning of the essential learning standards?