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Mathematics Unit Planning in a PLC at Work®, Grades 6–8

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Study Guide

This study guide is a companion to the book *Mathematics Unit Planning in a PLC at Work®, Grades 6–8* by Sarah Schuhl, Timothy D. Kanold, Jessica Kanold-McIntyre, Suyi Chuang, Matthew R. Larson, and Mignon Smith. *Mathematics Unit Planning in a PLC at Work, Grades 6–8* guides teachers through the process of planning mathematics units in the context of collaborative teams in a PLC, allowing students to build self-efficacy and allowing for a more effective, equitable learning experience for all.

This guide is arranged by chapter, enabling readers to either work their way through the entire book or focus on the specific topics addressed in a particular chapter. It can be used by individuals, small groups, or an entire team to identify key points, raise questions for consideration, assess conditions in a particular school or district, and suggest steps that might be taken to promote a healthy school culture.

We thank you for your interest in this book, and we hope this guide is a useful tool in your efforts to create a healthy culture in your school or district.

Chapter 1

Planning for Student Learning of Mathematics Grades 6–8

1. Examine figure 1.1 (page 9). Why is it important to collaboratively determine an appropriate time frame for each mathematics unit?

2. Figure 1.2 (page 11) breaks down mathematics unit planning. How does this tool fit into collaborative mathematics planning?

3. Table 1.1 (page 12) lists key math concepts for the middle grades. How does your school's current curriculum line up with these key concepts?

4. Why is it important for teachers from grades 6–8 to plan collaboratively, even though they may not be teaching the same material?

5. What questions on page 13 stand out to you? How do these questions help build a more equitable learning experience for students?

Chapter 2

Unit Planning as a Collaborative Mathematics Team

1. Fill out figure 2.2 (page 17). How did you and your team score? Where could improvements be made?

2. What are *essential learning standards* and why are they important? How many essential learning standards should be present in each unit?

3. What is the purpose of *prior-knowledge standards*? How can they be incorporated into mathematics unit planning?

4. Examine the section titled *Resources and Activities* (page 26). What are some good resources and activities that would fit will with your mathematics curriculum?

5. Why is it important to add tools and technology to a mathematics curriculum? What are some effective tools and technology that fit will in the middle grades?

Chapter 3

Grade 6 Unit: Ratios and Rates

1. Think of an essential learning standard for ratios and rates in a sixth-grade setting. Looking at figure 3.1 (page 41) as a guide, how would you unwrap that standard?

2. Examine figure 3.5 (page 46). What benefit do unit calendars provide when it comes to mathematics unit planning?

3. What are some important vocabulary words for ratios and rates in a sixth-grade setting? Why is it important for students to understand mathematics vocabulary as they learn each unit?

4. Why are reflections and notes so important for unit planning? How can they help shape future units?

5. Other than ratios and rates, what are some units that fit well in a sixth-grade context? Try walking through the unit planning process for some of these other units.

Chapter 4

Grade 7 Unit: Proportional Reasoning

1. Think of an essential learning standard for proportional reasoning in a seventh-grade setting. Looking at figure 4.1 (page 61) as a guide, how would you unwrap that standard?

2. What are some essential prior knowledge standards for proportional reasoning in a seventh-grade setting?

3. What types of tasks are necessary for learning and meeting the essential learning standards of proportional reasoning? What resources and activities can be used to demonstrate these tasks?

4. What tools and technology would be ideal to help students learn proportional reasoning?

5. Other than proportional reasoning, what are some units that fit well in a seventh-grade context? Try walking through the unit planning process for some of these other units.

Chapter 5

Grade 8 Unit: Linear Functions and Equations

1. Think of an essential learning standard for linear functions and equations in an eighth-grade setting. Looking at figure 5.1 (page 84) as a guide, how would you unwrap that standard?

2. Is it possible to shift or change dates on a unit calendar? How would you go about this process?

3. What are some methods of helping students become familiar with unit vocabulary and notations?

4. What tools and technology do you currently use for various mathematics units? How can you expand or alter those to fit this unit planning framework?

5. Other than linear functions and equations, what are some units that fit well in a eighth-grade context? Try walking through the unit planning process for some of these other units.