

## Common Core Classroom Connections

### Chapter One

#### Section 1.1

1. Go to the *Common Core State Standards* website (<http://www.corestandards.org/Math>). **This is** the main site for further questions about the *Common Core Standards for Mathematics*.
  - a. Look under the menu item “Introduction” to see how the standards are organized by **Standards, Clusters** and **Domains**.
  - b. Pick a grade level from the menu and select a **Domain** to see the **Standards** listed in that domain.
  - c. Go back to the menu and select *Standards for Mathematical Practice*. In your own words, how would you describe the difference between the “Standards for Mathematical Practice” and the “Grade-level Standards”?

#### Section 1.2

2. Common Core (website: <http://www.corestandards.org/Math> or app)

In the *Standards for Mathematical Practice*, read the paragraph under “CCSS.Math.Practice.MP1 Make Sense of Problems and Persevere in Solving Them”. Choose one problem from 44 through 52 on page 34 of your text that you have solved and explain what parts of this practice you employed in your solution. Use examples from your solution to the problem you chose in your explanation.

3. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 4 *Operations & Algebraic Thinking* content standard 4.OA.5. Identify an example in Section 1.2 or *Exercises and Problems 1.2* in your text that you believe satisfies this standard and explain how the example you picked satisfies this content standard.

#### Section 1.3

4. Common Core (website: <http://www.corestandards.org/Math> or app)

The Grade 6 content standards have a domain called *Expressions & Equations*. Read through the nine *Expressions & Equations* content objectives to determine which objectives you believe can be achieved using the balance-scale model from Section 1.3 of your text. Explain how these content objectives can be achieved.

## Common Core Classroom Connections

### Chapter Two

#### Section 2.1

5. Common Core (website: <http://www.corestandards.org/Math> or app)

At the Kindergarten level, students are expected to start to classify objects and in Grades 3 and 4, students are expected to analyze two-dimensional shapes.

- Which mathematical content standards give these expectations?
- Describe how you might, as a teacher, use sorting and classifying attribute pieces, as done in Section 2.1 of your text, to address these standards. Give specific examples and explain your thinking.

#### Section 2.2

6. Common Core (website: <http://www.corestandards.org/Math> or app)

At what grade level(s) are students expected to start working with linear equations; with functions?

- Which standards give these expectations?
- Pick one activity or problem done in class or as homework that you believe employs one or more processes from the *CCSS Mathematical Practices* and addresses at least one of these standards. Describe the activity or problem and explain how it addresses these standard(s) and the *Mathematical Practice* you have picked.

#### Section 2.3

7. Common Core (website: <http://www.corestandards.org/Math> or app)

Throughout the *Common Core State Standards*, the *Mathematical Practices* say that students should "Construct viable arguments and critique the reasoning of others". Describe how the ideas of deductive reasoning in Section 2.3 of your text address this mathematical practice using Example J as a basis for your argument.

## Common Core Classroom Connections

### Chapter Three

#### Section 3.1

8. Common Core (website: <http://www.corestandards.org/Math> or app)

In Grade 1 (1.NBT.2) and in Grade 2 (2.NBT.1), the *Number and Operations in Base Ten* content standard refers to the idea of “bundling” with respect to place value.

- Read 1.NBT.2 and 2.NBT.1. Summarize these standards in your own words.
- Pick one of the base-ten numeration models in Section 3.1 of your text and explain how you can use the model you picked to specifically address the standards you describe in part a of this question.

#### Section 3.2

9. Common Core (website: <http://www.corestandards.org/Math> or app)

- At what grade level are students expected to have mastered whole number addition and subtraction “within 1000”? Which mathematical content standards give this expectation?
- Pick one whole number addition or subtraction activity or problem done in class or as homework that you believe employs one or more processes from the CCSS *Mathematical Practices*. Describe the activity or problem and explain how it addresses the *Mathematical Practice* you have picked.

#### Section 3.3

10. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 4 *Numbers & Operations in Base Ten* content standard 4.NBT.5 and then refer to Table 3 in the Glossary of the *Common Core State Standards* for a list of the properties of operations.

Review Example C on page 170 of your text and then explain how this example addresses the idea of multiplication “...using strategies based on place value and the properties of operations”.

#### Section 3.4

11. Common Core (website: <http://www.corestandards.org/Math> or app)

In the introduction to the Grade 3 standards, the authors refer to “equal-sized group (division) situations”.

- Which Grade 3 standard expands on this idea?
- Give a specific division example and compare the terminology in Section 3.4 of your text, “sharing / measurement” with the CCSS “number of objects / number of shares” terminology as it relates to your example.

## Common Core Classroom Connections

### Chapter Four

#### Section 4.1

12. Common Core (website: <http://www.corestandards.org/Math> or app)
  - a. Read the Grade 4 *Operations & Algebraic Thinking* content standard 4.OA.4 and then summarize it in your own words.
  - b. Describe how you can use rectangle array models (for example, see page 224 of your text) to address each of the ideas in the mathematics content standard 4.OA.4.

#### Section 4.2

13. Common Core (website: <http://www.corestandards.org/Math> or app)
  - a. At what grade level are students expected to start finding greatest common factors (gcf) and least common multiples (lcm)? Give the standard that lists this expectation.
  - b. Pick one activity or problem done in class or as homework that you believe employs one or more processes from the *CCSS Mathematical Practices* and this standard. Describe the activity or problem and explain how it addresses the standard and the *Mathematical Practice* you have picked.

## Common Core Classroom Connections

### Chapter Five

#### Section 5.1

14. Common Core (website: <http://www.corestandards.org/Math> or app)
  - a. At what grade level are students expected to have mastered integer operations? Describe the standard that expresses this in your own words.
  - b. Pick one integer operation activity or problem done in class or as homework that you believe employs one or more processes from the *CCSS Mathematical Practices*. Describe the activity or problem and explain how it addresses the *Mathematical Practice* you have picked.

#### Section 5.2

15. Common Core (website: <http://www.corestandards.org/Math> or app)

Read through Example R on page 300 in your text.

  - a. What Grade 4 standard is addressed in this example? Summarize this standard in your own words.
  - b. List each of the *CCSS Mathematical Practices* you believe are illustrated in Example R. Explain how they apply.

#### Section 5.3

16. Common Core (website: <http://www.corestandards.org/Math> or app)
  - a. Read the Grade 5 *Number & Operations—Fraction* content standard 5.NF.5b and then summarize the meaning of this standard in your own words.
  - b. Use detailed diagrams of Fraction Bars to show, step-by-step, how you can illustrate standard 5.NF.5b. Explain your thinking.

**Common Core Classroom Connections****Chapter Six****Section 6.1**

17. Common Core (website: <http://www.corestandards.org/Math> or app)
- Read the Grade 5 *Number and Operations in Base Ten* content standard 5.NBT.3 about comparing decimals and “using the  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons”. Use the Decimal Square models for .229 and .230 to illustrate the meaning of this standard.
  - The Grade 5 *Number and Operations in Base Ten* content standard 5.NBT.4 addresses using place value to understand rounding decimals. Read 5.NBT.4 and use the Decimal Square model to illustrate this standard and explain how to round .249 to the nearest hundredth, then how to round .249 to the nearest tenth.

**Section 6.2**

18. Common Core (website: <http://www.corestandards.org/Math> or app)

By the end of grade 5 students are expected to attain the *Number and Operations in Base Ten* content standard 5.NBT.7. Show how the Decimal Square diagram on page 372 of your text for  $0.80 \div 4$  can be adapted to illustrate how to use a concrete model to show that  $0.80 \div 0.4$  is equivalent to  $8 \div 4$ . In what way does this activity address 5.NBT.7?

**Section 6.3**

19. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 6 *Ratios & Proportional Relationships* content standard 6.RP.3. This standard refers to two of the three types of percent problems. Refer to examples H, I, and J on pages 395 and 396 in your text to identify, by name, the two types of percent problems that are mentioned in the standard and the type of percent problem illustrated in your text which is not mentioned in standard 6.RP.3.

**Section 6.4**

20. Common Core (website: <http://www.corestandards.org/Math> or app)

- It is in eighth grade that irrational numbers are introduced. Read the Grade 8 *Number System* content standard 8.NS.2 and then, referring to the example in the standard, explain what they mean when they say to “truncate the decimal expansion of  $\sqrt{2}$  ... to show that  $\sqrt{2}$  is between 1.4 and 1.5. “
- Use a number line model (see Example J on page 355 in your text) to illustrate how you would continue the truncation of  $\sqrt{2}$  to three and to four decimal places to get even better approximations. Explain how this addresses standard 8.NS.2.

## Common Core Classroom Connections

### Chapter Seven

#### Section 7.1

21. Common Core (website: <http://www.corestandards.org/Math> or app)
- Read through the *Measurement and Data* standards and find when students are first expected to work with picture and bar graphs. Give the grade level, the standard reference number and then summarize the standard that expresses this expectation.
  - At the next grade level, students are expected to expand their understanding of bar graph to a scaled bar graph. Give the grade level, the standard reference number and then summarize the standard that expresses this expectation.
  - Sketch examples of a "single-unit scale bar graph" and a "scaled bar graph" using the techniques from Section 7.1 of your text to illustrate the standards in parts a. and b. Explain your thinking.

#### Section 7.2

22. Common Core (website: <http://www.corestandards.org/Math> or app)

The CCSS refer to the concepts of mean, median and interquartile range in a four part Grade 6 *Statistics & Probability* content standard; 6.SP.5.

Analyze the two data sets in Example E on page 478 in your text using each of the steps in this standard. Explain your thinking.

#### Section 7.3

23. Common Core (website: <http://www.corestandards.org/Math> or app)

The Grade 7 *Statistics and Probability* content standard 7.SP.1 discusses the need for samples to represent a population.

Pick one activity or problem done in class or as homework that you believe demonstrates a method to pick a valid population from which to draw conclusions. Explain how you can use this method in your own classroom to address this standard.

## Common Core Classroom Connections

### Chapter Eight

#### Section 8.1

24. Common Core (website: <http://www.corestandards.org/Math> or app)
- Summarize the Grade 7 *Statistics and Probability* content standard 7.SP.5 in your own words.
  - Describe how the spinner activities in Example E on page 524 of your text can be used to address each of the ideas in 7.SP.5.

#### Section 8.2

25. Common Core (website: <http://www.corestandards.org/Math> or app)
- Summarize the Grade 7 *Statistics and Probability* content standard 7.SP.8 in your own words.
  - Read the paragraph under “CCSS.Math.Practice.MP5 Use appropriate tools strategically”. Explain how a problem such as the one explored in Example C on page 544 of your text can be used to address both the content standard 7.SP.8 and this mathematical practice.



## Common Core Classroom Connections

### Chapter Nine

#### Section 9.1

26. Common Core (website: <http://www.corestandards.org/Math> or app)
- Read the Grade 4 *Geometry* content standard 4.G.1 and record the nine geometric figures that students must know and be able to identify.
  - Look at the paper-folding activities in Examples B, C, D, and K in Section 9.1 of your text to see which of the nine figures are illustrated. For any figure not illustrated, devise a paper-folding activity for the figure.

#### Section 9.2

27. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 8 *Geometry* content standard 8.G.5

- Explain how the informal argument about the sum of the measures of the interior angles of a triangle on page 592 of your text addresses this standard.
- Explain how you can use the fact that any triangle tessellates the plane to make another informal argument that the sum of the measures of the interior angles of a triangle is  $180^\circ$ .

#### Section 9.3

28. Common Core (website: <http://www.corestandards.org/Math> or app)

- Read the Grade 7 *Geometry* content standard 7.G.3 and explain whether or not the Cross-Sections of a Cube Applet referenced on page 620 of your text satisfies this standard.
- As a teacher, explain what activity you might use to satisfy standard 7.G.3 in a meaningful way if you do not have access to such an applet.

#### Section 9.4

29. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 4 *Geometry* content standard 4.G.3 concerning line symmetry. Explain which activity, example, or exercise in Section 9.4 of your text you could most easily use or adapt if teaching line symmetry in a fourth grade class in a way that will address this standard.

## Common Core Classroom Connections

### Chapter Ten

#### Section 10.1

30. Common Core (website: <http://www.corestandards.org/Math> or app)

What Grade 1 *Measurement* standards are satisfied by the activities suggested in Examples B and C on page 655 of your text?

31. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 2 *Measurement & Data* content standard 2.MD.2 and explain in your own words what you believe this standard means. Pick one activity or problem done in class or as homework that you believe addresses this standard. Explain your thinking.

#### Section 10.2

32. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 3 *Measurement & Data* content standard 3.MD.5 and explain in your own words what it means for children to understand the “concept” of area measurement. Relate your ideas to a problem or activity done in class or as homework

33. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 7 *Geometry* content standard 7.G.4 and explain what you believe it means to “give an informal derivation of the relationship between the circumference and area of a circle.” How does this relate to Figure 10.40 on page 687 of your text?

#### Section 10.3

34. Common Core (website: <http://www.corestandards.org/Math> or app)

What Grade 6 *Geometry* standard is met by the activities in *Math Activity 10.3* on page 699 of your text? How do the “Surface Area and Volume for Three-Dimensional Figures” activities address the standard you have identified?

35. Common Core (website: <http://www.corestandards.org/Math> or app)

Using square grid paper, make a net for the triangular right prism shown in Figure 10.48 on page 706 of your text and determine the surface area of the prism from your net.

- Which *Geometry* content standard is met by this activity?
- In the *Common Core State Standards* under the *Standards for Mathematical Practice*, read the paragraph under “CCSS.Math.Practice.MP6 Attend to Precision”. How does this activity address this mathematical practice?

## Common Core Classroom Connections

### Chapter Eleven

#### Section 11.1

36. Common Core (website: <http://www.corestandards.org/Math> or app)

Read the Grade 7 *Geometry* content standard 7.G.2. Explain in your own words what is meant by the second sentence in this standard, citing examples from Section 11.1 or the *Exercises and Problems 11.1* in your text.

#### Section 11.2

37. Common Core (website: <http://www.corestandards.org/Math> or app)

Determine which Grade 8 *Geometry* standards you believe are satisfied by problems 2 through 7 in *Exercises and Problems 11.2*. Describe how these problems address the standards that you have identified.

#### Section 11.3

38. Common Core (website: <http://www.corestandards.org/Math> or app)

Choose one of the problems 1 through 5 in *Exercises and Problems 11.3* on page 801 of your text and:

- a. Explain how it satisfies all parts of the Grade 7 *Geometry* standard 7.G.1
- b. Explain how, and in what way, the problem satisfies at least one of the Standards for *Mathematical Practice*.