

Comments on Selected Lessons for 5th grade:

Lesson 3.5: Using a Compass

Learning Target: Determine relationship between radius and diameter.

In this lesson, students find relationships between adjacent and opposing angles and use the compass for other activities. It is more significant and grade level appropriate for 5th graders to just be able to understand the relationship between radius and diameter at this time. Plan to spend more time on this activity.

Lesson 3.6: Congruent Triangles

Learning Target: Classify triangles as isosceles, equilateral, or scalene.

Again, it is more significant and grade level appropriate for 5th graders to just be able to identify the triangles rather than to be able to construct them with different tools. Plan to spend more time on this activity.

Lesson 5.10: The Percent Circle: Reading Circle Graphs

Learning Target: Estimate fractional sector sizes of a circle graph to determine percentages. (Consider using Excel™ to demo.)

Demonstrating methods for Using a Percent Circle: We have included an additional note to consider using Excel™ as your demonstration model to better illustrate the changes in sector sizes as the data / percentages change.

Brief explanation:

- 1) Enter data in an Excel worksheet, 2 columns with total
- 2) Select the data cells - include titles - exclude total
- 3) Choose Chart Wizard – pie - finish
- 4) Double click on any sector - data labels tab - show percent

Once you have created the pie chart you can change the values in your table and the pie chart will reflect your changes.

Lesson 6.5: Sample Size and Sound Conclusions

Learning Target: Determine the reliability of data as it relates to sample size. (See Advanced Prep.)

In this lesson the focus is on the unreliability of sample size. Under Advanced Prep., a modification is suggested to use a larger amount of candy to draw both a small and large sample size and compare for reliability.

Lesson 7.1, 7.2 & 7.3: Exponential Notations, Powers of 10 and Scientific Notation

Learning Targets: (see Instructional Guide)

The most grade level appropriate skills that students should come out with in these lessons is to note some patterns inherent to exponents and that when it comes to patterns of 10 the exponent lets you know the place value (the number of zeros) when writing a number. (i.e. $7 * 10^6$ is $7 * 1,000,000$ or 7 with 6 zeros or 7,000,000)

Lesson 7.7: Using Negative Numbers

Learning Target: Use a number line to compare and order integers (positive and negative numbers)

Ordering and comparing negative fractions and decimal is above grade level. It is more grade level appropriate to just focus on integers.

Lesson 8.5, 8.6 & 8.7: Fractions of Fractions, Area Model for Fraction Multiplication and Multiplication of Fractions and Whole Numbers
Learning Targets: (see Instructional Guide)

Sixth Grade Connected Math covers the area model of multiplication of fractions in depth as well as other strategies. Also the items involving multiplication of fraction on the progress check are only found in Part B.

Lesson 8.12: Fraction Division

Learning Targets: Use pattern blocks to find the number of fractional parts in whole numbers.

This lesson should focus only on dividing whole numbers by fractions. A suggested model using Pattern Blocks:

“How many $\frac{2}{3}$ in 3? or $3 \div \frac{2}{3}$ ” Students would use 3 hexagons to begin. Then trade them for blue rhombi (9 blocks) which represent thirds. Then divide into groups of $\frac{2}{3}$ (2 blues per group). Then count how many groups of the 2 blues. Answer: There will be 4 and $\frac{1}{2}$ groups.



Lesson 8.13: Progress Check

Note on Slate Assessment: Problem 4 (TLG p688) says, “Find the percent of numbers.” A better way to state this is “Calculate the quantity represented by these percents.”

Lesson 9.7: Earth’s Water Surface

Learning Target: Use sampling of map coordinates to estimate the percentage of surface area.

An alternative to this activity would be for students to use all intersecting coordinates (16 latitudes and 36 longitudes = 576 coordinates) as a larger sample. Provide each group of students with a map of a different continent (these can be copied from the 4th grade SRB p 282 – 293). Each group can then count the number of coordinates that fall over land (i.e. Africa has 26). As a class, then add up all the counts (the teacher can contribute 12 for Antarctica), which should total close to 160. To calculate the number of coordinates over water subtract the total from 576 then calculate your percent of earth’s water surface.

Lesson 10.1 & 10.2: Pan-Balance Problems & Pan-Balance Problems with Two Balances

Learning Target: Use pan-balance diagrams to solve for object weights.

Even though you might have had a chance to practice the problems in Part 1, sometimes small differences in the weights of like objects may not allow for accurate results when you are modeling for the students. You may choose to model these problems using a diagram and discuss the equivalence of removing like objects from each side rather than using the concrete model. If you do use the concrete model you may need to set aside some time to discuss why certain examples did not work.

Lesson 10.8: Circumference of a Circle

Learning Target: Use a sample of ratios between measured circumferences and diameters to approximate π .

Considerations for this lesson include:

- The selection of round objects must be true cylinders, meaning they need to sit flat and have straight sides. Many water or soda bottles have notched bases and tapered sides. Also, it helps to have cylinders with sharp edges instead of rounded ones so that the pencil does not go underneath it as much when tracing them. A roll of masking tape works great.
- For measuring circumference it is recommended students use masking tape instead of string, since string may stretch, is hard to hold in place and may yield skewed results. Students can overlap the tape, mark it, remove it and measure between the marks.
- Another method for determining the diameter of a circle would be to trace it onto a paper, fold the paper so the two halves of the circle line up and then measure the fold. This would more closely relate to their previous learning about diameter in lesson 3.5.

Lesson 11.5: Finding Volume by a Displacement Method

Learning Target: Use a calibrated container to determine volume of irregular objects through displacement of water.

Calibrating your Bottles: In order to save a considerable amount of time, because calibration of bottles affects the accuracy of results and because of limited supplies, it is suggested that you calibrate all of the bottles ahead of time.

- Make sure that all of your 2-L bottles are identical.
- Save one non-calibrated bottle to model the calibration process for your students as directed in the lesson.
- Fill the rest of your 2-L bottles to the same height.
- Follow directions on SMJ p382. For #2, cut enough strips (masking tape) for all of your student groups and put them all on ONE of the student bottles.
- As you calibrate that bottle by adding 100 mL at a time, mark all strips .
- When you are done calibrating, carefully transfer the strips to the other bottles. Be careful not to stretch the masking tape.

Using SPS Instructional Guides for Everyday Math*

* The Instructional Guides for teaching EDM have been created for Units 1 – 7, for 3rd – 5th grades. Other grades and the later Units will be completed during the school year. These guides will be posted on the Mathematics Home page of the District Website.

These Instructional Guides (IG) were created to assist teachers as they plan a unit.

LEFT SIDE - CONTENT

- Big Ideas , Learning Targets
Key Concepts and Skills and vocabulary -taken directly from the TLG.

RIGHT SIDE - HELP WITH PLANNING

- Writing / Reasoning Prompts -tell when they come up in the unit.
- Advanced Prep -tells what materials you need to gather that aren't at your school, or that require assembly, or special copying and cutting.
- RSAs - Recognizing Student Achievement from the Ongoing Assessment

About EDM Lessons

- In EDM it may be difficult to single out what to focus on.
The Objective often refers to more than one concept and sometimes just mentions an activity rather than a defined objective.
- The Key Concepts and Skills listed in your IG may sometimes seem scattered.
The Learning Targets in IG are an attempt to connect a single area of content to the activities from each lesson and to the unit as a whole. Learning Targets are meant to draw depth of mathematical content in the EDM lessons.

Connecting the Lessons of the Unit

Defined by Randall Charles and based on his work and research published in the NCSM Journal of Mathematics Educational Leadership.

- **A Big Idea** is a statement of an idea that is central to learning of mathematics, one that links numerous mathematical understandings into a coherent whole.
 - It is an overarching idea that relates to concepts across grade levels.
(Learning Target makes a statement specific to grade level, but, the Big Idea connects the concepts students are working on to what they have done before and what they will do in later years.)

Example: *The idea of equivalence is the same in first grade as it is in fifth, but the specific lessons, skills and activities may be different in each.*
 - Post **BIG IDEAS** in your classroom
 - Refer to them often during math instruction, and in summarizing lesson.
As students see these throughout their mathematics career they will become familiar with these *connecting* Big Ideas

•Vocabulary

- As you present lessons, display vocabulary on Math Word Wall or pocket chart.
Referring back to them between lessons is a natural way to connect.

About LEARNING TARGETS

Makes a statement specific to grade level

- May be the most important concept of the lesson.
- May be what the lesson is mostly about.
- May be how a lesson connects to other lessons in the unit.
- May just be the most grade level appropriate goal at this time.

These Learning Targets are a start for this first year of implementation. You might decide to use a different Learning Target.

How to Use Your Learning Targets

- As the student and I carry out a discussion
 - I will ask questions from the book
 - I will add questions related to the target
 - I will provide summarizing opportunities for my students as the lesson connects to the target.
- If the lesson seems unrelated to what we have been doing lately, I will use the target to draw an explicit connection to the other lessons in the unit before the lesson is over.
- If the lesson seems to include concepts that are *too far beyond grade level expectations* I will have my students at least get exposure to the target.
- If the lesson has several unrelated activities that I just don't have time for I will focus my lesson on the activity that relates to the target.