**Lesson 8 Notes: Subtraction of Whole Numbers**

**ANSWER KEY**

**Definition of Subtraction:**

* the taking away of objects from a given set
* to draw away from under
* can be thought of as the process of taking away

Addition and subtraction are inverse operations!

Manipulatives like Base 10 Blocks are useful for teaching subtraction. 1([Video](https://www.youtube.com/watch?v=JjpJVvvC-jI))

**Integers positive and negative whole numbers**

***“Taking Away Concept”***

**Example 1:** Supposed you have 8 basketballs and you give 3 basketballs away. How many basketballs do you have left?

21



***“Comparison Concept”***

**Example 2:** Supposed you have 8 basketballs and someone else has 4 basketballs. How many more basketballs do you have?



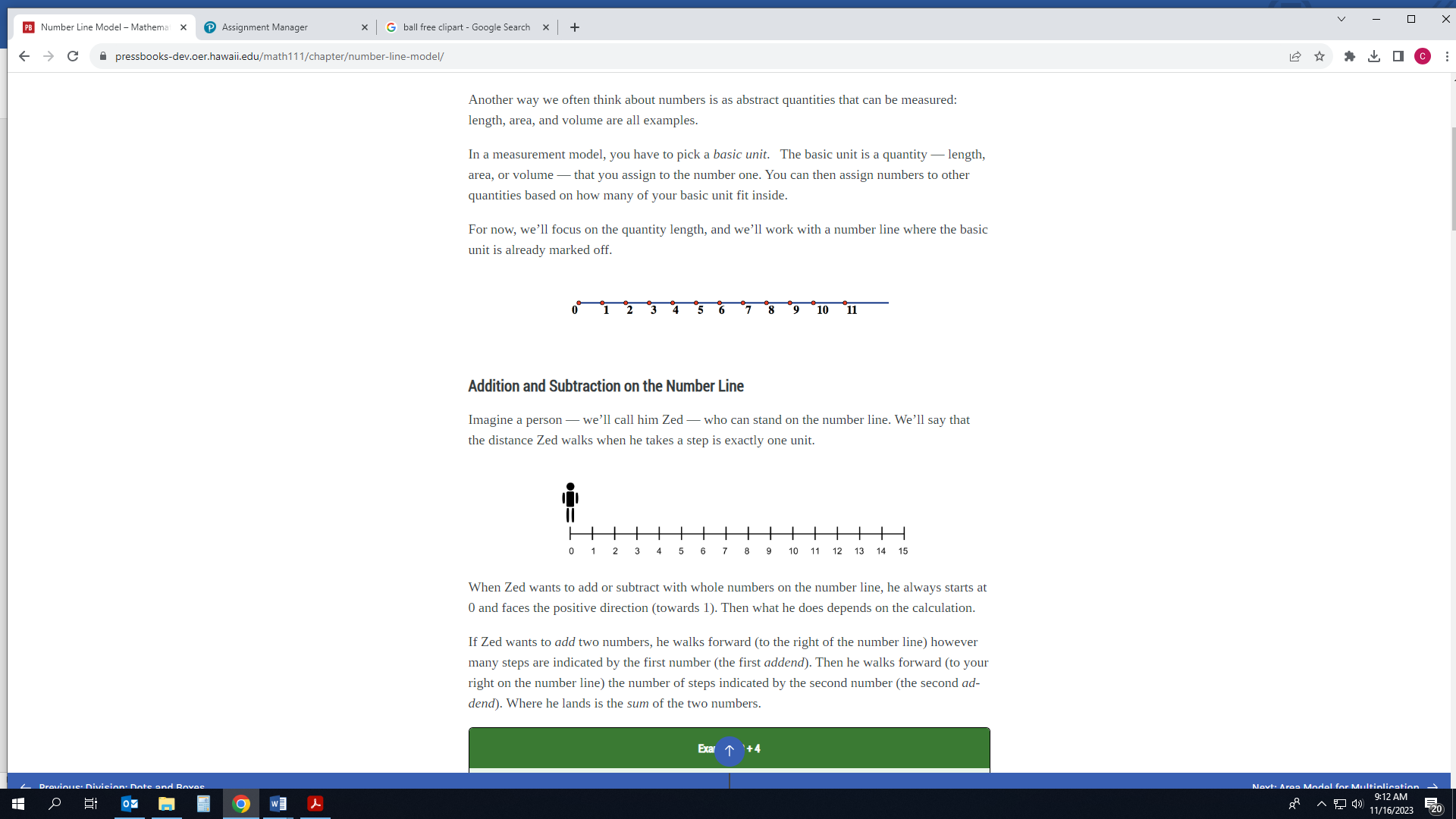
***“Missing Addends Concept”***

**Example 3:** Supposed you have 5 basketballs and need 8 basketballs to take to the tournament. How many more basketballs do you need?



**“*Number Line Model” -*** When Zed wants to *subtract* two numbers, he walks forward (to the right on the number line) however many steps are indicated by the first number (the *minuend*).  Then he walks *backwards* (to the left on the number line) the number of steps indicated by the second number (the *subtrahend*).  Where he lands is the *difference* of the two numbers. [Textbook Video](https://youtu.be/GHtV1qYDM5Q).

**Zed**



Rewrite second number to end in 0.

86 – 20 = 66

Then “compensate” for the 7 by subtracting 7 more.

66 – 7 = 59

Rewrite second number to end in 0.

325 – 50 = 275

Then “compensate” for the 8 by subtracting 8 more.

275 – 8 = 267

**Left-to-Right Subtraction**

Refers to the “decomposition” of the second number to make it end in zero. Then, calculations are done mentally.

**Exercise 4:** Subtract using left-to-right subtraction

325 86

- 58 - 27

**Algorithms for Subtraction**

* Left to Right
* Partial Differences
* Add up Method
* Traditional (Borrowing)

11 – 3 = 8

284

267

500 – 200 = 300

40 – 50 = -10

2 – 8 = -6

300 – 10 = 290 – 6 = 284

270 – 3 =

267

300 – 0 = 300

20 – 50 = -30

5 – 8 = -3

270

**Add Up Method for Subtraction**

It’s like making change: Start with the smaller number and add up to a larger number in small increments. Keep a running total.

**Exercise 6:** Subtract using Add Up Method.

325 542

- 58 - 258

+ 2 + 2

60 260

+40 +40

100 300

+200 +200

300 500

+25 +42

325 542

**Partial Differences for Subtraction**

This algorithm is worked left to right, one place value at a time.

**Exercise 5:** Subtract using Partial Differences.

325 542

- 58 - 258

**Traditional “Borrowing” Method for Subtraction**

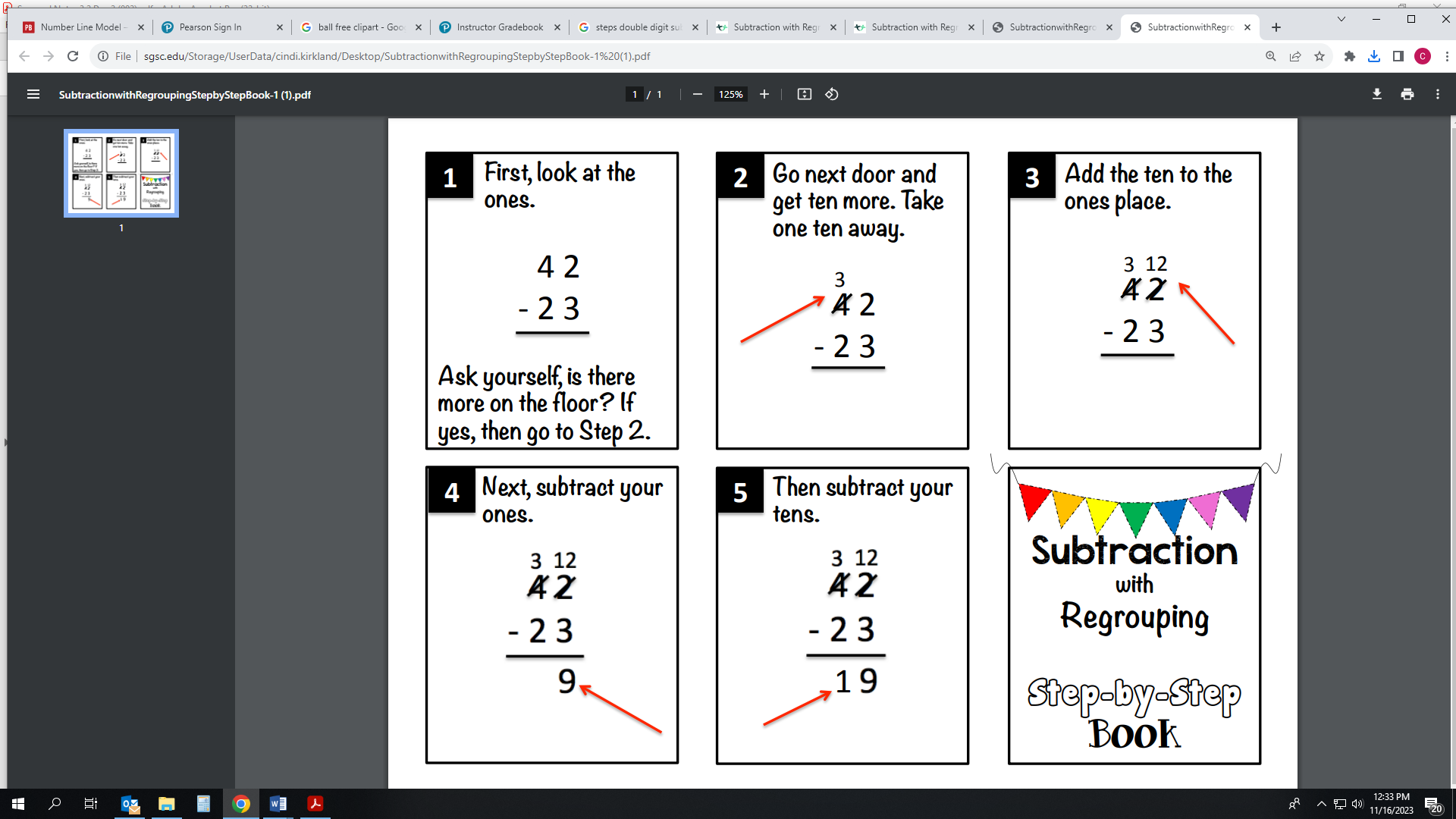
“trade up”, “borrowing concept”

Worked right to left

379 7132

- 58 - 4568

321 2564



**Try This New Approach:** Subtract a consistent number from the subtrahend and minuend (terms used in subtraction).

4001 subtract 2 3999

- 2873  subtract 2 - 2871

1128

You Try:

310 2 subtract 3 3099

- 1467 subtract 3 - 1467

1638

12

10

122

2

0

6

3

**References**

1YouTube. (2020, June 30). *Subtraction within 50 with regrouping – base-10 blocks and Place Value Chart*. YouTube. https://www.youtube.com/watch?v=JjpJVvvC-jI

2Hernandez, Beverly. (2021, September 1). *Basketball Printables*. Retrieved from <https://www.thoughtco.com/free-basketball-printables-1832363>

*3Subtraction with regrouping step-by-step book*. TPT. (n.d.). https://www.teacherspayteachers.com/Product/Subtraction-with-Regrouping-Step-by-Step-Book-1659323