# Notes and Class Participation

Directions: Print this handout. Use this handout to take notes as you read pages 162 – 173, watch the lecture video, and view the PowerPoint slides. After you complete this handout, scan pages 1, 2, 4, 5, and 6, and attach them to Lesson 10 Class Participation Assignment. Hyperlinks are on page 7.

Section 3.5 Lecture Video





# Division Models

### Repeated Subtraction Model

In the repeated subtraction model, the **divisor is the number of items in each group** and the **quotient is the number of groups**.

Model division using the *repeated subtraction* model. Use a picture and sentences as you would explain this method to an elementary school child.

12 ÷ 4

### Set (Partitioning) Model (Equal Groups)

In the partitioning model the **number of groups is the divisor** and the **quotient is the number of items in each group**. (ERROR in video: Please note that the tomato can problem in the video is **not** showing partition but is showing repeated subtraction.)

Model division using the *set (partitioning)* model. Use a picture and sentences as you would explain this method to an elementary school child. The picture that you draw will be different from the one above.

12 ÷ 4

Missing-Factor Model Watch this video about the equal groups and the missing-factor model.



Model division using the *missing-factor* model. Write sentences as you would explain this method to an elementary school child.

12 ÷ 4

Lesson 10: Section 3.5 Division of Whole Numbers Watch this <u>video</u> of a student solving a division problem. What model of division did the student use?



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### Division

Write the definition of *division*.

Write the three other symbolic representations for  $a \div b$ .

In the division problem  $a \div b = c$ , the mathematical term for "a" is?

In the division problem  $a \div b = c$ , the mathematical term for "b" is?

In the division problem  $a \div b = c$ , the mathematical term for "c" is?

### **Division Properties**

### Closure

Is the set of whole numbers closed under division? Why or why not. If not, give an example to show that the set of whole number is not closed under division.

### Division with 0

Discuss the problem  $3 \div 0$ .

Discuss the problem  $0 \div 0$ .

Discuss the problem  $0 \div 3$ .

Dividing by 1 Finish this statement: n ÷ 1 = \_\_\_\_\_

### Inverse Operations

Discuss the relationship between multiplication and division as inverse operations.

# Lesson 10: Section 3.5 Division of Whole Numbers Division Algorithms

Base 10 blocks

Visit this base 10 block virtual manipulative website.

Take time and explore all of the tools that are available. Practice several division problems using the virtual manipulatives. The following was created using these base 10 block virtual manipulatives.



Divide  $532 \div 4$  using virtual base 10 blocks found <u>here</u>. Use the share work/copy image tool. Use the example above as a model. Show each step of the process. Show the traditional algorithm along with your work. Turn this in as a separate file.

### Partial Quotients Videos













Divide using the **partial quotients** algorithm.

### 532 ÷ 4

### Divide using the **scaffolding algorithm**.

532 ÷ 4

video 3

# Lesson 10: Section 3.5 Division of Whole Numbers Base 5 Multiplication

Table 11	Base-Five Multiplication Table					
×	0	1	2	3	4	
0	0	0	0	0	0	
1	0	1	2	3	4	
2	0	2	4	11	13	
3	0	3	11	14	22	
4	0	4	13	22	31	

Watch the following base 5 division videos





video 3 playlist of base 5 division



Divide the following base 5 numbers using base 5 blocks and the standard algorithm. Draw the base 5 blocks and show regrouping.

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# Lesson 10: Section 3.5 Division of Whole Numbers

**Mental Computation** 

Breaking up and dividing video



Divide the following using the mental computation strategy of breaking up and dividing. Show mental steps on paper.

117 ÷ 9





Divide the following using the mental computation strategy of using compatible numbers. Show mental steps on paper.

150 ÷ 6

# Responding to students

Watch this <u>video</u>. Was the student's answer correct? How does the student's solution relate to the standard long division algorithm? Show and explain.





Review terms from Section 3.4 by using flashcards found <u>here</u>. Select chapter 3 and then select section 4. Review the terms until you know them.

### Lesson 10: Section 3.5 Division of Whole Numbers Hyperlinks

### • Lecture video: <u>https://mediaplayer.pearsoncmg.com/assets/BMT13\_sl\_0305</u>

- PowerPoint slides: <u>https://cwoer.ccbcmd.edu/math/math131/Lesson10Section3.5.ppsx</u>
- Missing Factor Model video: <u>https://mediaplayer.pearsoncmg.com/assets/BMT12\_ccia\_0303\_02</u>
- Student Division video 1: <u>https://mediaplayer.pearsoncmg.com/assets/IMAP\_127</u>
- Base 5 Virtual Manipulatives: <u>https://apps.mathlearningcenter.org/number-pieces/</u>
- Partial Quotient video 1: <u>https://www.youtube.com/embed/zk0RaqNyTuU?r=0</u>
- Partial Quotient video 2: <u>http://www.youtube.com/embed/aKg\_Tvo1jWY?r=0</u>
- Partial Quotient video 3: <u>https://www.youtube.com/embed/R486L0M5cWk?r=0</u>
- Partial Quotient video 4: <u>https://www.youtube.com/embed/Okasrw0qNAs?r=0</u>
- Scaffolding Division video 1: <u>http://www.youtube.com/embed/3cMRxCThCNE?r=0</u>
- Scaffolding Division video 2: <u>http://www.youtube.com/embed/EdStBWAAack?r=0</u>
- Scaffolding Division video 3: <u>http://www.youtube.com/embed/MhJM6gY-4to?r=0</u>
- Base 5 division video 1: <u>http://www.youtube.com/embed/kbMEk7mlsgs?r=0</u>
- Base 5 division video 2: <u>https://www.youtube.com/embed/zHjXZ4uWLy8?r=0</u>
- Base 5 division video 3 play list: <u>http://www.youtube.com/embed/videoseries?list=PLC2gec-SQvP0J1Eunp5TKEoRuA12t8H48</u>
- Breaking up and Dividing Video: <u>http://www.youtube.com/embed/o1OzWiv\_IEI?r=0</u>
- Compatible Number Division video: <u>http://www.youtube.com/embed/quOGyWOwRFs?r=0</u>
- Responding to Student Division video: <u>https://mediaplayer.pearsoncmg.com/assets/0srgxPu\_IIIxhYmoC2QhpAsx\_VB1bInS</u>
- Flashcards:
  <u>https://media.pearsoncmg.com/aw/aw\_billstein\_mathforteachers\_13/flashcards/launch.html</u>