Section 3: Mastering Multi-Digit Division

Unit 3.1: Procedural CCC: 3÷1 Digit w/ Remainder

Intervention Procedures: Division Subskill Set: 3÷1 Digit w/ Remainder

6. Read the teacher script to demonstrate procedures, model completion using visual cues (see below).

7. Have student complete problem and verbally describe procedures. Provide feedback as needed and repeat until student accurately completes problem.

8. Have student complete problems containing visual cues & provide behavior specific praise as needed.

9. Have student complete remaining problems (no visual cues). Problems on second page will require student to discriminate when and when not to use the taught procedure (monitor carefully).

10. After student finishes, present student with scoring key. Review completed probe and provide student with feedback on accuracy. Provide error correction & re-teaching as necessary

*It is recommended that the student complete 2 worksheets per day (e.g., worksheets 1A & 2A).

Teacher Script: Division Subskill Set: 3÷1 Digit w/ Remainder.

Today we are going to work on some multi-digit division problems. Your packet contains 2 pages. On the first page you will find four rows of problems. The first two rows each has two problems in bold that have the answer. I am going to explain how to get the answer then you will cover it and do the problem next to it by yourself. As you complete the problem I want you to tell me what you are doing to solve the problem. If you are unsure or do something incorrectly I will help you. When you can correctly complete a problem and describe your steps I will have you complete rows 3 and 4 by yourself. The problems in row 3 have lines to help you correctly organize your columns and the problems in row 4 you will have to do by yourself. If you need help or are unsure what to do, raise your hand and I will help you. Let's start.

You just finished learning how to do multi-digit division. However, all the problems you practiced were able to be divided with exact answers. For many division problems to be solved you will need to use a remainder to represent left over amounts or use decimals to provide exact answers (more on decimals later).

Locate the first problem. Remember, to solve a division problem you begin by comparing the divisor to the first number to the right. If it is smaller then you begin, if it is larger you combine the first two numbers and begin. For this problem the divisor is __ and the first number to the right is __. It is smaller than the __ so we look at the first two numbers to the right and begin. Now you will use your skills of multiplication and estimation to solve this part of the problem. You take the divisor __ and calculate what number times the divisor either equals or comes closest to the dividend without going over. In this case __ x __ = __. You take the __ and place it directly above the tens column and take the value of the multiplied problem and place it under the __. You subtract the difference of the problem (__-__=__) and drop the __ in the ones column. Repeat these procedures to finish the problem. The divisor, __ x __ = __. You write the answer in the ones column. In the past this has always been zero because the divisor could be divided into an exact whole number amount. But with these problems you will need to write down the amount left over, called a remainder. This problem has a remainder of __. We write this next to the whole number after a capital R or R__.

Now cover the problem and answer with this piece of paper and attempt the problem next to it. As you are working the problem I want you to tell me what you are doing. If you are unsure or do something incorrectly I will help you. When you are finished, uncover the problem and we will see if your answer is correct. If you can't do the problem correctly or you need my help I will help you with the steps and I will have you do the next problem and tell me what you are doing. When you can get the right answer without my help I will have you complete rows 3 and 4 by yourself. These problems have lines to help you correctly align columns. The second page contains division problems but there are no boxes. If you need help or are unsure what to do, raise your hand and I will help you. After you are done we will check your work to see how many you answered correctly! If you miss any we will correctly work the problem! Let's start.

94 R 2 3)284 -27 14 -12 2	3)284 - -	39 R 3 6)237 -18 57 -54 3	6)237 - -
71 R 7 8)575 -56 15 -08 7	8)575 - -	126 R 2 7)884 -7 18 -14 44 -42 2	7)884 - -
3)951	9)950	5)632	4)394
6)520	2)823	8)442	7)445

MIND: Computation Division 3÷1 Digit Worksheet 1B

3⟌283	6⟌440	4⟌406	9⟌543
7⟌278	2⟌975	5⟌991	8⟌515
6⟌743	5⟌522	2⟌123	7⟌725
9⟌888	4⟌747	3⟌725	8⟌892

3 1 R 1
4⟌1 2 5
- 1 2
   0 5
-   4
     1
	4⟌1 2 5
	-
	-
	
		5 7 R 5
		9⟌5 1 8
		- 4 5
		   6 8
		- 6 3
		     5
			9⟌5 1 8
			-
			-

1 0 5 R 3
7⟌7 3 8
- 7
  0 3
- 0
   3 8
- 3 5
    3
	7⟌7 3 8
	-
	-
	-
		1 1 7 R 6
		8⟌9 4 2
		-8
		  1 4
		- 8
		   6 2
		- 5 6
		    6
			8⟌9 4 2
			-
			-
			-

4⟌8 1 4	5⟌4 1 7	3⟌2 1 1	6⟌6 6 7
7⟌3 3 7	3⟌6 2 8	4⟌7 1 5	9⟌8 3 9

9⟌428	4⟌118	5⟌616	7⟌536
8⟌229	6⟌431	4⟌319	3⟌823
2⟌729	8⟌529	5⟌137	6⟌917
5⟌323	7⟌235	9⟌924	4⟌634

50 R 8 9)458 -45 08 - 08 8	9)458 -	106 R 2 7)744 -7 04 - 0 44 - 42 2	7)744 -
69 R 7 8)559 -48 79 - 72 7	8)559 - -	31 R 4 5)159 -15 09 - 5 4	5)159 - -
8)663	5)268	4)471	3)352
8)767	5)148	7)842	6)548

8)653	5)348	9)941	4)257
7)867	3)163	6)446	2)659
8)241	6)778	5)568	6)959
9)855	6)469	7)968	5)361

```
        1 3 8 R 6
   7 | 9 7 2
   - 7
     2 7
   - 2 1
       6 2
   -   5 6
         6
```

```
   7 | 9 7 2
   -
     -
   -
```

```
        1 3 0 R 1
   6 | 7 8 1
   - 6
     1 8
   - 1 8
       0 1
   -   0
         1
```

```
   6 | 7 8 1
   -
     -
   -
```

```
          6 6 R 3
   9 | 5 9 7
   - 5 4
       5 7
   -   5 4
         3
```

```
   9 | 5 9 7
   -
     -
```

```
        1 5 9 R 2
   3 | 4 7 9
   - 3
     1 7
   - 1 5
       2 9
   -   2 7
         2
```

```
   3 | 4 7 9
   -
     -
```

```
   6 | 8 8 9
```

```
   5 | 1 9 2
```

```
   3 | 3 8 2
```

```
   7 | 7 9 2
```

```
   8 | 9 6 5
```

```
   5 | 4 8 1
```

```
   7 | 6 8 2
```

```
   4 | 2 8 1
```

8)175	5)582	4)674	7)492
9)894	4)375	6)273	2)983
8)691	3)772	5)189	4)875
7)442	6)298	9)578	2)399

22 R 4 5 ⟌ 1 1 4 − 1 0 　 1 4 − 　1 0 　　 4	5 ⟌ 1 1 4 − −	1 0 8 R 7 8 ⟌ 8 7 1 − 8 　 0 7 − 　0 　 7 1 − 　6 4 　　 7	8 ⟌ 8 7 1 − −
89 R 6 7 ⟌ 6 2 9 − 5 6 　 6 9 − 　6 3 　　 6	7 ⟌ 6 2 9 − −	5 2 R 3 6 ⟌ 3 1 5 − 3 0 　 1 5 − 　1 2 　　 3	6 ⟌ 3 1 5 − −
7 ⟌ 7 3 6	3 ⟌ 4 1 2	9 ⟌ 8 2 6	5 ⟌ 1 3 2
6 ⟌ 9 2 8	7 ⟌ 5 2 2	8 ⟌ 2 1 4	4 ⟌ 6 9 3

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4)513	8)327	3)128	5)913
6)227	7)265	9)425	8)537
6)723	9)812	4)339	5)231
7)436	3)997	8)613	2)717

138 R 2
7)968
- 7
  26
- 21
   58
- 56
    2
	7)968
	-
	
	-
	
	-
		42 R 7
		8)343
		- 32
		  23
		- 16
		   7
			8)343
			-
			
			-

71 R 3
9)642
- 63
  12
-   9
   3
	9)642
	-
	
	-
		143 R 1
		6)859
		- 6
		  25
		- 24
		  19
		- 18
		   1
			6)859
			-
			
			-
			
			-

3)179	4)935	5)757	2)553
6)243	8)357	4)165	9)976

8)566	5)377	9)842	3)763
6)278	4)953	7)639	5)252
7)368	8)741	9)544	3)154
6)265	5)658	4)837	7)572

STOP: ASSESS STUDENT

Step 1: Using CBM procedures assess student on the probe on next page for <u>1 minute</u> & document DC/M scores.

- <u>CBM Administration Directions</u>**.**

  - ➢ Provide student(s) with pencil and probe.

  - ➢ Tell students to put their name and date on probe.

  - ➢ Read the following instructions:

  "The sheet on your desk has division problems. When I say "BEGIN," start answering the problems. Start at the first problem, work across the page then go to the next row. You should work as fast as you can without skipping problems. If you come to a problem that you do not know, mark an 'X' through it and go on to the next problem. Continue working until I tell you to stop. Are there any questions? Ready. Begin"

  - ➢ When you instruct student(s) to *"Begin"* start the timer.

  - ➢ Monitor student procedural adherence. Prompt student if directions are violated. For example,

  "Please work across the page"
  "Do not skip problems, if you cannot answer it mark an 'X' through it"
  "Keep working until I tell you to stop."

  - ➢ After <u>1 minute</u> elapses, tell the student(s) *"Stop, please put down your pencil."* Collect probe(s).

Step 2: Record student performance. _____ DCPM.

Step 3: Decide what packet the student needs to complete.

- If student performance is between 10 – 20 DCPM or above then repeat 3.2

- If student performance is above 20 DCPM move to Unit 3.3

8⟌175	5⟌582	4⟌674	7⟌492
9⟌894	4⟌375	6⟌273	2⟌983
8⟌691	3⟌772	5⟌189	4⟌875
7⟌442	6⟌298	9⟌578	2⟌399