Names: Date: 3-21-17

Teacher Lesson Planner:

❑ Overall goal(s) of lesson - What's the big idea?

> To make sure the students understand the concept of Quotent Rule.

❑ Skills/concepts

What do we want students to know?	What do we want students to be able to do?
- To understand what and how to do it - What it means	- Master to quotent Rule -

❑ Lesson notes and ideas (brainstorm)

> - Start with the example and explain it step by step
>   - First colum (why are we doing that/How)
>   - Third colum (why are we doing that/How)
>   - let them ask questions in between
> - give worksheet after they understand it

❑ What can we do to ensure that our students accomplish the learning goals?

> - After the worksheet ask someone to come up and do it
>   - Let them do problems they don't get

❏ What are some good examples and nonexamples that will help explain our rule?

Examples	Nonexamples
$\dfrac{2^4}{2^1} = \dfrac{\cancel{2} \cdot 2 \cdot 2 \cdot 2}{\cancel{2}} = 2^3$ $\dfrac{2^6}{2^4} = \dfrac{\cancel{2} \cdot \cancel{2} \cdot \cancel{2} \cdot \cancel{2} \cdot 2 \cdot 2}{\cancel{2} \cdot \cancel{2} \cdot \cancel{2} \cdot \cancel{2}} = 2^2$	

❏ Think ahead: What kinds of questions might our students ask?

- Why are you doing it like that?
- Is there another way?
- I don't get it?

❏ What obstacles might we run into? How should we be prepared to handle each one?

Possible obstacle	How we might handle it
Not getting it	A person who does understand it to explain it

❑ Lesson Outline

Timing	What Students Will Do	What Teacher Will Do
4 min	listening asking questions	Explain the examples well
6 min	doing worksheet	walk around help if needed

❑ Create worksheet (with solutions)

❑ Try out lesson and make any necessary changes. Decide how you will present it; remember that everyone needs to be involved!

Name: _____

Group member(s): _____

What's the rule?

$\dfrac{3^5}{3^3}$	$\dfrac{3 \cdot 3 \cdot 3 \cdot 3 \cdot 3}{3 \cdot 3 \cdot 3}$	3^2
$\dfrac{2^4}{2^1}$	$\dfrac{2 \cdot 2 \cdot 2 \cdot 2}{2}$	2^3
$\dfrac{5^3}{5^2}$	$\dfrac{5 \cdot 5 \cdot 5}{5 \cdot 5}$	5^1
$\dfrac{2^6}{2^4}$	$\dfrac{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}{2 \cdot 2 \cdot 2 \cdot 2}$	2^2
$\dfrac{6^4}{6^2}$	$\dfrac{6 \cdot 6 \cdot 6 \cdot 6}{6 \cdot 6}$	6^2

1. What do you notice happening in each row of the table?

— How many number are on the bottom the top is being crossed off

— The remaining numbers makes up the answer

— Both the top and bottom have the same numbers

2. Based on what you notice, fill in the blanks in the table.

3. If you didn't have the middle column, how would you explain to someone how to get from the first column to the last column?

To get it look at the examples, looking at it you have an idea of how its being set up. Then give it a try if they don't get it, ask questions and I can explain it better or give another example.

4. Make it simple! Rewrite your explanation so that it's a general rule about exponents using x^m and x^n, where x, m, and n represent numbers like in the table.

Subtract the exponents to get the answer.

$$\dfrac{x^m}{x^n} = \dfrac{5^6}{5^3} = \boxed{5^3} = \dfrac{5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5}{5 \cdot 5 \cdot 5} = \boxed{5^3}$$

$$X = 5 \quad N = 3 \quad M = 6$$

$$M - n = X$$

$$\boxed{X^{m-n}}$$