Investigate

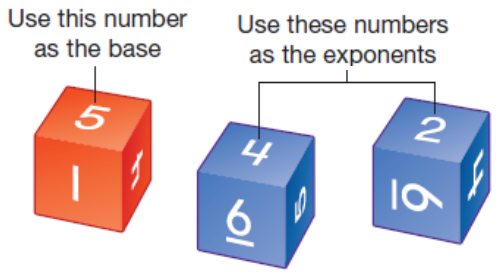
You will need 3 number cubes: 2 of one colour, the other a different colour
Two of you investigate multiplying powers. Make a table like this:

Product of Powers	Product as Repeated Multiplication	Product as a Power
$5^4 \times 5^2$	$(5 \times 5 \times 5 \times 5) \times (5 \times 5)$	$5^?$

Two of you investigate dividing powers. Make a table like this:

Quotient of Powers	Quotient as Repeated Multiplication	Quotient as a Power
$5^4 \div 5^2 = \frac{5^4}{5^2}$	$\frac{5 \times 5 \times 5 \times 5}{5 \times 5}$	$5^?$

Roll the cubes.
Use the numbers to create powers, as shown.
Record each quotient of powers with the greater exponent in the dividend (the numerator).
Express each power as repeated multiplication, and then as a single power.
Repeat the activity at least five times.



2.4 Exponent Laws I

Investigate

Investigate

Express each power as repeated multiplication, and then as a single power.
Repeat the activity at least five times.

Product of Powers	Product as Repeated Multiplication	Product as a Power
$3^2 \times 3^2$	$(3 \times 3) \times (3 \times 3)$	3^4
$4^2 \times 4^4$	$(4 \times 4) \times (4 \times 4 \times 4 \times 4)$	4^6

Use this number as the base

Use these numbers as the exponents

2.4 Exponent Laws I

Investigate p. 2

Investigate

Record each quotient of powers with the greater exponent in the dividend (the numerator).
Repeat the activity at least five times.

Quotient of Powers	Quotient as Repeated Multiplication	Quotient as a Power
$1^2 \div 1^1 = \frac{1^2}{1^1}$	$\frac{(1 \times 1)}{1}$	$2-1$ → 1
$c^2 \div c^2 = \frac{c^2}{c^2}$	$\frac{6 \times 6}{6 \times 6}$	$2-2$ → 0
$3^5 \div 3^3$	$\frac{3 \times 3 \times 3 \times 3 \times 3}{3 \times 3 \times 3}$	$5-3$ → 3^2
Use this number as the base	Use these numbers as the exponents	

2.4 Exponent Laws I

Investigate p. 3

Exponent Laws

(only works when the bases are the same)

1. Exponent Law #1: Power of a Product

$$(a^m)(a^n) = a^{m+n}$$

(when multiplying powers with the same bases)

Example: $3^5 \times 3^2 = 3^{5+2} = 3^7$

2. Exponent Law #2: Quotient of a Power

$$a^m \div a^n = a^{m-n}$$

(when dividing powers with the same bases)

Example: $(-4)^7 \div (-4)^5 = (-4)^2 \quad (-4)^{7-5}$

Nov 1-11:03 AM