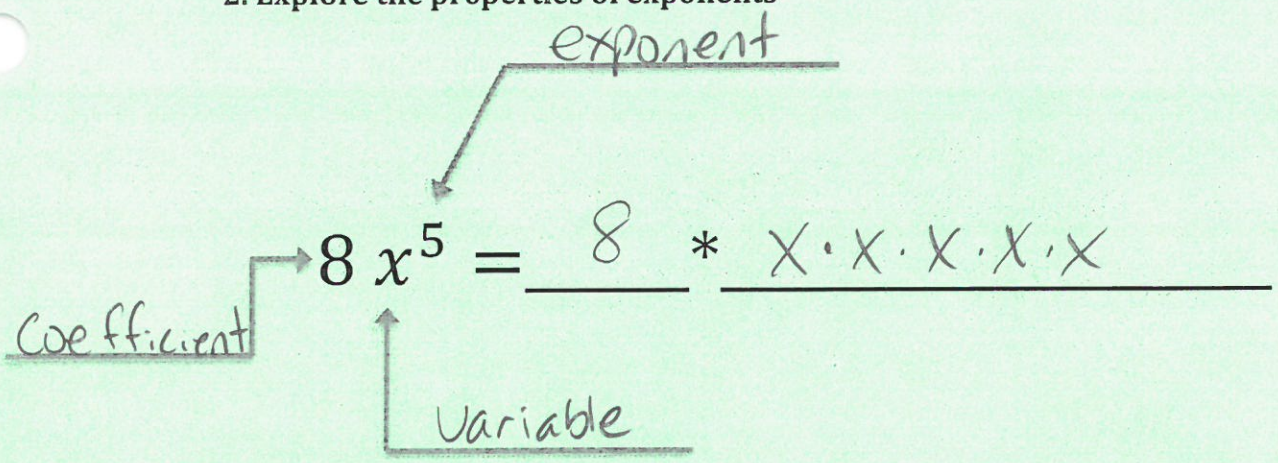
Exponents Vocabulary (IC 1)

Objective- **1. Identify and define the parts of an exponential expression**
2. Explore the properties of exponents



Properties of Exponents:

Property with rule description	Numerical Example	Variable Example
$a^n * a^m = a^{n+m}$	$2^3 \cdot 2^4 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$ $2^7 = 128$	$x^2 \cdot x^3 = x^{2+3}$ x^5
$\frac{a^n}{a^m} = a^{n-m}$	$\frac{3^4}{3^2} = \frac{3 \cdot 3 \cdot 3 \cdot 3}{3 \cdot 3} = 3 \cdot 3$ $3^2 = 9$	$\frac{x^5}{x} = x^{5-1} = x^4$
$(a^n)^m = a^{n \cdot m}$	$(5^2)^3 = 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5$ $= 5^6 = 15625$	$(x^4)^3 = x^{4(3)}$ $= x^{12}$
$a^{-n} = \frac{1}{a^n}$ $\frac{1}{a^{-n}} = a^n$	$6^{-2} = \frac{1}{6^2} = \frac{1}{36}$ $\frac{1}{2^{-3}} = 2^3 = 8$	$\frac{x}{x^5} = x^{1-5} = x^{-4}$ $\frac{x}{x \cdot x \cdot x \cdot x \cdot x} = \frac{1}{x^4}$
$a^0 = \frac{a^n}{a^n} = 1$	$8^0 = 1$ $(-2546)^0 = 1$	$\frac{x^3}{x^3} = \frac{x \cdot x \cdot x}{x \cdot x \cdot x} = 1$ $x^{3-3} = x^0 = 1$