

Vocabulary Review Sheet

Lesson – Proportions and Fairness in Pollution Exposure

How to Use

- Read each term carefully before your quiz.
- Study the **math**, **real-life**, and **fairness** examples to connect your learning.
- Use this sheet to help you explain how proportions reveal fairness in environmental health.
- Keep it inside your *Equity in Numbers Student Journal* as part of your review toolkit.

Proportion

- **Definition:** An equation that shows two ratios are equal or balanced.
- **Math Examples:**
 - $40/100 = 2/5 = 40\%$
 - $25/80 = 5/16 \approx 31\%$
 - $10/60 = 1/6 \approx 17\%$
- **Real-Life Example:** Comparing how many homes in each neighborhood report pollution exposure.
- **Fairness Example:** Proportions help us see which communities face more pollution — not just which have more homes.

Ratio

- **Definition:** A comparison of two quantities using division.
- **Math Examples:**
 - $40:100 \rightarrow 2:5$
 - $25:80 \rightarrow 5:16$
 - $10:60 \rightarrow 1:6$

- **Real-Life Example:** Ratios compare households exposed to pollution with total homes.
- **Fairness Example:** Ratios make the comparison fair even if neighborhoods have different sizes.

Fraction

- **Definition:** A number that represents part of a whole.
- **Math Examples:**
 - $40/100 = 2/5$
 - $50/120 = 5/12$
 - $10/60 = 1/6$
- **Real-Life Example:** A fraction shows how much of a neighborhood experiences pollution.
- **Fairness Example:** Fractions help show the portion of families affected in each community.

Percent

- **Definition:** A fraction or ratio out of 100 that makes comparisons easier to understand.
- **Math Examples:**
 - $40/100 = 40\%$
 - $25/80 = 31\%$
 - $10/60 = 17\%$
- **Real-Life Example:** A 40% exposure rate means 4 out of every 10 homes are affected.
- **Fairness Example:** Percentages clearly show when one community experiences more pollution than another.

Simplify

- **Definition:** To reduce a fraction or ratio to its smallest numbers while keeping the same meaning.
- **Math Examples:**
 - $40/100 \rightarrow 2/5$
 - $25/80 \rightarrow 5/16$
 - $50/120 \rightarrow 5/12$
- **Real-Life Example:** Simplifying data helps make comparisons easy to understand.
- **Fairness Example:** Simplified ratios and proportions help identify the biggest environmental gaps.

Compare

- **Definition:** To look at two or more amounts and decide which is greater, smaller, or equal.
- **Math Examples:**
 - $40\% \text{ vs } 31\% \rightarrow 40\% \text{ is higher.}$
 - $5/12 \text{ vs } 1/6 \rightarrow 5/12 \text{ is greater.}$
 - $2/5 > 1/6.$
- **Real-Life Example:** Comparing pollution rates shows which neighborhoods have better air quality.
- **Fairness Example:** Comparison helps identify where to focus resources for clean air and health.

Exposure

- **Definition:** How much contact people have with pollution or harmful substances.
- **Math Examples:**
 - 40 of 100 exposed $\rightarrow 40\%$.

- 25 of 80 exposed → 31%.
- 10 of 60 exposed → 17%.
- **Real-Life Example:** Families near factories may experience higher exposure to pollutants.
- **Fairness Example:** Reducing exposure levels in high-risk neighborhoods promotes environmental justice.

Environmental Justice

- **Definition:** The fair treatment of all people, regardless of race or income, in environmental policies.
- **Math Examples:**
 - Neighborhood A (40%) and C (42%) show high pollution → need more protection.
 - Neighborhood D (17%) → lower exposure.
 - Proportional gaps = unfairness in clean air access.
- **Real-Life Example:** Communities of color often face more pollution near industrial zones.
- **Fairness Example:** Environmental justice means using math and data to ensure everyone breathes clean air.

Fairness

- **Definition:** Ensuring everyone has equal access to safety, health, and opportunity.
- **Math Examples:**
 - 40% vs 17% → unfair difference in pollution exposure.
 - Goal: make all neighborhoods near 0% exposure.
 - Compare proportions to find where help is needed most.
- **Real-Life Example:** Some neighborhoods have fewer trees and more traffic, increasing pollution.

- **Fairness Example:** Fairness means helping the most affected communities first to balance health outcomes.

Compare → Conclude

- **Definition:** Using proportional reasoning to make sense of what the numbers mean.
- **Math Examples:**
 - $2/5 > 1/6$ → A has greater pollution exposure.
 - $5/12 > 5/16$ → C more exposed than B.
 - Convert fractions → 40%, 42%, 31%.
- **Real-Life Example:** Comparing proportions helps city leaders plan where to improve air quality.
- **Fairness Example:** Data-driven conclusions lead to fairer decisions for all neighborhoods.

Summary of Math + Fairness Connections

Concept	Math Focus	Fairness Connection
Proportion	Compares parts of different groups	Reveals unequal pollution exposure
Simplify	Reduces fractions clearly	Clarifies where inequality exists
Percent	Converts fractions for easy comparison	Helps explain fairness in access
Exposure	Measures pollution contact	Shows who faces higher health risks
Environmental Justice	Applies math to fairness	Supports clean air for all communities