Vocabulary Review Sheet

Lesson – Scale, Similar Figures, and Walkable Neighborhoods

How to Use

- Read each definition carefully before your quiz.

- Review **math examples**, **real-life examples**, and **fairness examples** to see how geometry supports equitable design.

- Keep this sheet in your *Equity in Numbers Student Journal* to study before your next assessment.

- Remember: *Scale and similarity help us measure fairness across neighborhoods*.

Scale

- **Definition:** A ratio that compares a distance on a map to the actual distance in real life.

- **Math Examples:**

    o 1 inch = 500 feet

    o 2 in × 500 ft = 1,000 ft

    o 3 in × 500 ft = 1,500 ft

- **Real-Life Example:** Measuring how far a park or store is from a school on a city map.

- **Fairness Example:** Scale reveals how close or far community resources are for different families.

Similar Figures

- **Definition:** Shapes that have the same form but different sizes; their sides are proportional.

- **Math Examples:**

    o Rectangle A: 2 in × 4 in → Rectangle B: 4 in × 8 in → sides = 2× larger.

- o   Ratio of sides = 1:2.

- **Real-Life Example:** Comparing two neighborhood maps drawn at the same scale.

- **Fairness Example:** Similar figures allow planners to compare communities fairly, even when the maps differ in size.

Scale Factor

- **Definition:** The number used to multiply (or divide) dimensions to change size while keeping proportions the same.

- **Math Examples:**

    - o   Scale Factor = 500 ft per inch.

    - o   2 in × 500 = 1,000 ft; 3 in × 500 = 1,500 ft.

- **Real-Life Example:** Architects use scale factors to convert blueprints into real-world measurements.

- **Fairness Example:** Equal scale factors ensure all neighborhoods are measured and represented accurately.

Proportion

- **Definition:** An equation showing two ratios are equal.

- **Math Examples:**

    - o   1 in / 500 ft = 2 in / 1,000 ft.

    - o   3 in / 1,500 ft = 1 in / 500 ft.

- **Real-Life Example:** Verifying that map distances match real-world distances.

- **Fairness Example:** Proportions help compare community layouts without bias toward size or wealth.

Map Distance

- **Definition:** The measurement between two points on a map.

- **Math Examples:**
  - Park ↔ School = 2 in → 1,000 ft in real life.
  - Home ↔ Store = 4 in → 2,000 ft.
- **Real-Life Example:** Measuring how far residents must walk to reach key services.
- **Fairness Example:** Long map distances may reveal neighborhoods with limited walkability or fewer nearby resources.

Real-World Distance

- **Definition:** The actual physical distance found by multiplying the map measurement by the scale factor.
- **Math Examples:**
  - 1.5 in × 500 ft = 750 ft.
  - 4 in × 500 ft = 2,000 ft.
- **Real-Life Example:** Determining how far families must travel to reach parks or schools.
- **Fairness Example:** Shorter real-world distances promote equity in access to safe, walkable spaces.

Walkability

- **Definition:** How easy and safe it is to walk from one place to another in a community.
- **Math Examples:**
  - ≤ 1,000 ft = walkable; > 1,000 ft = not walkable.
  - A = 1,000 ft ✅ ; D = 2,000 ft ❌ .
- **Real-Life Example:** A walkable neighborhood has sidewalks, crosswalks, and nearby schools or stores.
- **Fairness Example:** Walkability supports health, safety, and equal opportunity for all families.

Ratio

- **Definition:** A comparison between two numbers showing how many times one value contains another.

- **Math Examples:**

    o 1 in : 500 ft

    o 2 : 3 = 1,000 : 1,500

- **Real-Life Example:** Using ratios to keep map and real distances in balance.

- **Fairness Example:** Ratios make community comparisons fair, regardless of area size or population.

Accessibility

- **Definition:** How easily people can reach important places like parks, stores, or schools.

- **Math Examples:**

    o 750 ft → high accessibility; 2,000 ft → low accessibility.

    o Comparing distances = measuring access.

- **Real-Life Example:** Some neighborhoods have grocery stores within a short walk; others don't.

- **Fairness Example:** Mapping accessibility helps identify where more community investment is needed.

Equity in Urban Planning

- **Definition:** Designing cities so all people have fair access to safe, healthy, and convenient spaces.

- **Math Examples:**

    o Equalizing distances (≤ 1,000 ft to parks in all neighborhoods).

    o Proportional maps ensure fair representation of resources.

- **Real-Life Example:** Urban planners use data, ratios, and scale drawings to plan balanced communities.

- **Fairness Example:** Equity in planning means every family—no matter where they live—can walk safely to what they need.

Summary of Math + Fairness Connections

Concept	Math Focus	Fairness Connection
Scale	Converts map distance to real-world distance	Reveals gaps in neighborhood access
Similar Figures	Keep proportional sizes	Allow equal map comparisons
Walkability	Uses distance thresholds	Shows which areas support safe movement
Accessibility	Measures closeness to resources	Highlights need for equitable design
Equity in Urban Planning	Applies geometry + data	Creates fair, healthy communities