Vocabulary Review Sheet

Lesson – Functions & Input/Output Tables: Education and Income

How to Use

- Review each vocabulary word before your quiz.

- Compare the **math**, **real-life**, and **fairness** examples to understand how functions describe patterns in education and income.

- Keep this sheet in your *Equity in Numbers Student Journal* to revisit when analyzing data or creating graphs.

- Remember: *Every input connects to an output — and every opportunity should connect to fairness.*

Function

- **Definition:** A rule that links each input to exactly one output.

- **Math Examples:**

    o $(y = 2x + 3)$

    o Education → Income (High School → \$34K, Bachelor's → \$62K)

- **Real-Life Example:** Each education level has one typical income value.

- **Fairness Example:** When two groups have different outputs for the same input, math exposes inequality in opportunity.

Input

- **Definition:** The starting value or "cause" in a function — what goes *into* the rule.

- **Math Examples:**

    o Education level = input; (x) in $(y = f(x))$

- **Real-Life Example:** High School, Associate, Bachelor's, Master's degrees.

- **Fairness Example:** Everyone can have the same input (education), but not everyone gets the same output (income).

Output

- **Definition:** The result or "effect" that comes out after applying the rule to the input.
- **Math Examples:**
    - (y = 2x + 3 → y = 7) when (x = 2).
    - Income earned from a specific education level.
- **Real-Life Example:** Bachelor's degree → $62K average income.
- **Fairness Example:** Comparing outputs shows if equal education leads to equal pay.

Input/Output Table

- **Definition:** A chart that organizes inputs and outputs to show a function's pattern.
- **Math Examples:**

Input (x)	Output (y)
1	3
2	5
3	7

- **Real-Life Example:**

Education	Income
HS Diploma	$34K
Bachelor's	$62K

- **Fairness Example:** Side-by-side tables for different groups highlight income gaps at identical education levels.

Ordered Pair (x, y)

- **Definition:** Two related values showing one input and its matching output.

- **Math Examples:**

    - (HS, 34K), (Bachelor's, 62K)

    - (x, y) = (2, 7)

- **Real-Life Example:** (Education, Income) points plotted on a graph.

- **Fairness Example:** Comparing points for different groups shows how opportunity lines rise or flatten unequally.

Rule or Function Rule

- **Definition:** The mathematical relationship connecting each input to its output.

- **Math Examples:**

    - $(y = 10x + 20)$ or "add 10 each time."

- **Real-Life Example:** Every extra level of education adds roughly $10,000 to average income.

- **Fairness Example:** If one group's rule grows slower, math reveals systemic inequities affecting income.

Graph of a Function

- **Definition:** A visual model showing how outputs change as inputs increase.

- **Math Examples:**

    - A line rising from (1, 34) to (4, 78).

- **Real-Life Example:** A graph showing how income rises with higher degrees.

- **Fairness Example:** Two lines with different slopes (one steeper, one flatter) illustrate unequal returns on education.

Relationship

- **Definition:** The way inputs and outputs are connected; can show positive or negative trends.

- **Math Examples:**

  - As education ↑, income ↑ → positive relationship.

- **Real-Life Example:** More schooling usually means more income.

- **Fairness Example:** Math helps identify when the same education doesn't yield the same reward — an inequitable relationship.

Gap (or Difference)

- **Definition:** The amount one output is greater or smaller than another.

- **Math Examples:**

  - (62K – 50K = 12K) income gap.

- **Real-Life Example:** Two people with bachelor's degrees earn $12K apart.

- **Fairness Example:** Gaps measure the size of inequality; closing them means progress toward fairness.

Equity

- **Definition:** Fairness that ensures everyone receives the support they need to reach equal outcomes.

- **Math Examples:**

  - Adjusting a function's rule so outputs align fairly.

- **Real-Life Example:** Creating programs that raise incomes for groups historically underpaid.

- **Fairness Example:** Equity in math mirrors equity in life — balancing the outputs when inputs are equal.

Summary of Math + Fairness Connections

Concept	Math Focus	Fairness Connection
Function & Rule	Links each input to one output	Reveals unequal outcomes for equal education
Input/Output Table	Organizes data	Visualizes opportunity gaps
Graph & Relationship	Shows patterns of growth	Highlights where inequity widens
Gap (Difference)	Measures change between outputs	Quantifies unfairness
Equity	Balances results	Promotes fair opportunity for all learners