NF Number and Operations—Fractions

- **3.NF.A Develop understanding of fractions as numbers for fractions with denominators 2, 3, 4, 6, and 8.**
  - **3.NF.A.1 Understand a fraction 1/*b* as the quantity formed by 1 part when a whole (a single unit) is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.**
    - Understand fractions: fraction bars (3-V.5)
    - Understand fractions: area models (3-V.6)
    - Show fractions: fraction bars (3-V.7)
    - Show fractions: area models (3-V.8)
    - Match fractions to models: halves, thirds, and fourths (3-V.9)
    - Match unit fractions to models (3-V.10)
    - Match fractions to models (3-V.11)
    - Unit fractions: modeling word problems (3-V.20)
    - Unit fractions: word problems (3-V.21)
    - Fractions of a whole: modeling word problems (3-V.22)
    - Fractions of a whole: word problems (3-V.23)
  - **3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.**
    - **3.NF.A.2.a Represent a unit fraction, 1/*b*, on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/*b* and that the fraction 1/*b* is located 1/*b* of a whole unit from 0 on the number line.**
      - Fractions of number lines: unit fractions (3-V.12)
      - Identify unit fractions on number lines (3-V.15)
      - Graph unit fractions on number lines (3-V.17)
    - **3.NF.A.2.b Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.**
      - Fractions of number lines (3-V.14)
      - Identify fractions on number lines (3-V.16)
      - Graph fractions on number lines (3-V.18)
  - **3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.**
    - **3.NF.A.3.a Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.**
      - Identify equivalent fractions on number lines (3-W.3)
      - Find equivalent fractions using number lines (3-W.4)
    - **3.NF.A.3.b Recognize and generate simple equivalent fractions, e.g., 1 ? 2 = 2 ? 4, 4 ? 6 = 2 ? 3. Explain why the fractions are equivalent, e.g., by using a visual fraction model.**
      - Find equivalent fractions using area models: two models (3-W.1)
      - Find equivalent fractions using area models: one model (3-W.2)
      - Graph equivalent fractions on number lines (3-W.5)
      - Identify equivalent fractions (3-W.6)

- Find equivalent fractions (3-W.7)
- Find equivalent fractions with denominators of 10 and 100 (3-W.11)
- Write fractions in lowest terms (3-W.12)

- **3.NF.A.3.c Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.**
  - Graph fractions equivalent to 1 on number lines (3-W.8)
  - Select fractions equivalent to whole numbers using area models (3-W.9)
  - Find fractions equivalent to whole numbers (3-W.10)

- **3.NF.A.3.d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.**
  - Graph smaller or larger fractions on a number line (3-V.19)
  - Compare fractions using models (3-X.1)
  - Compare fractions using number lines (3-X.2)
  - Graph and compare fractions with like denominators on number lines (3-X.3)
  - Graph and compare fractions with like numerators on number lines (3-X.4)
  - Graph and compare fractions on number lines (3-X.5)
  - Compare fractions (3-X.6)
  - Compare fractions in recipes (3-X.7)