Viewing Fractions Flexibly to Develop Strategies for Operating on Fractions

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Getting Started

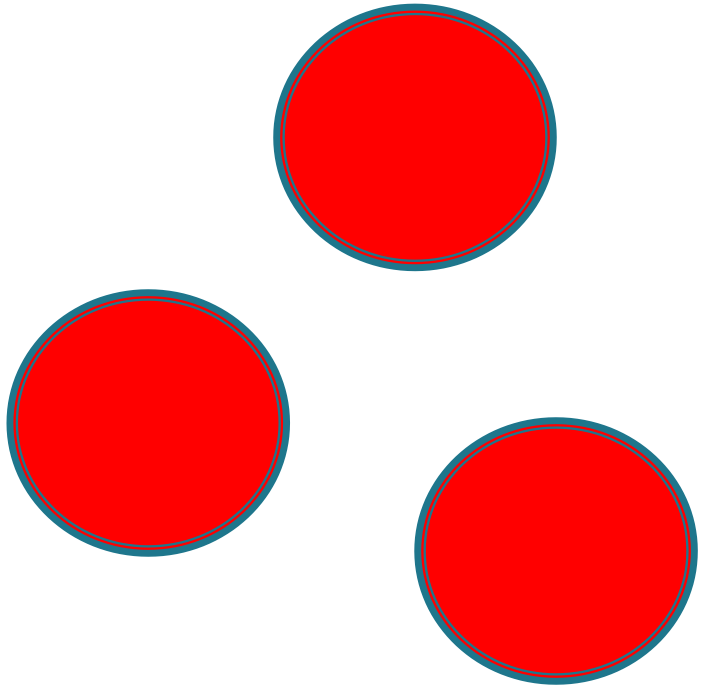
Number				Unit
one	nine	seventeen		halves
two	ten	eighteen		thirds
three	eleven	nineteen		fourths
four	twelve	twenty		fifths
five	thirteen	twenty one		sixths
six	fourteen	twenty two		eighths
seven	fifteen	twenty three		tenths
eight	sixteen	twenty four		twelfths

CCSSM

- **Viewing fractions as quantities (3.NF.2)**
- **Viewing fractions as iterations of unit fractions (3.NF.1)**
- **Equivalence of fractions (3.NF.3, 4.NF.1, 5.NF.1)**
- **Solve word problems involving fractions (4.NF.3; 5NF.2)**

Whole Numbers

Three



3

Why Not with Fractions?

Nine-fourths
Nine one-fourth pieces

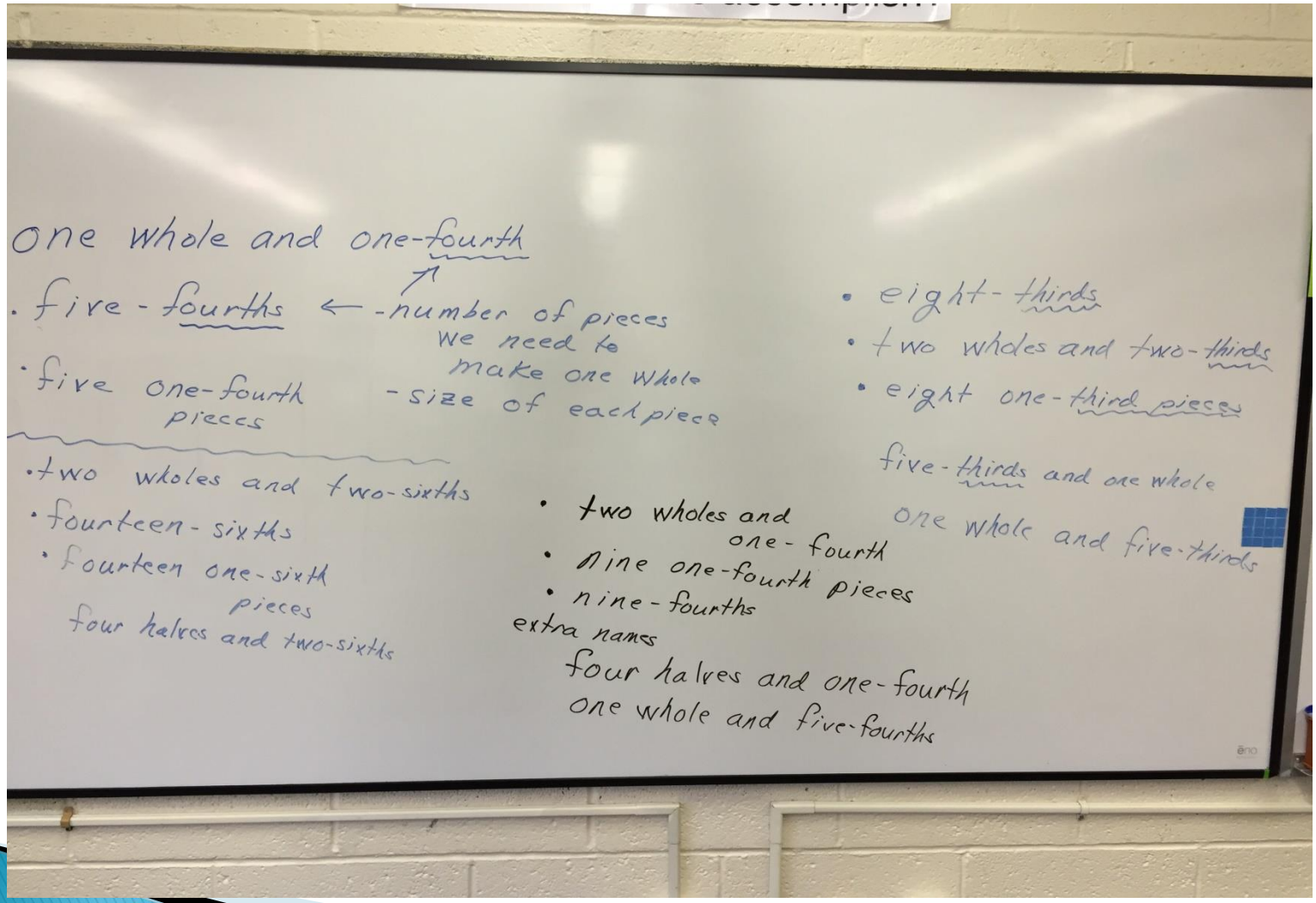
Research Base

- **Payne et al. (1976) - Write fractions in words**
- **Mack (1995) – Confusing symbols for fractions and whole numbers**
- **Mack (1990) – Able to work with fractions greater than one**

Overview of Approach

- **Write fractions in words**
- **Emphasize the naming part of the fraction tells two pieces of information**
- **Work with fractions greater than one from the beginning**
- **State fractions in equivalent ways from the beginning**

The Approach in Action



Other Factors Involved

- **Word problems**
  - **Join & Separate (result unknown) problems for addition & subtraction**
  - **Contexts – pizzas, cakes & pies to glasses of milk, miles, and hours**
  - **Include students' names in problems**
- **Manipulative materials**

  circles & strips to number lines

Sample Problems

- Nora had four one-third pieces of a pizza. Tyrone gave her two-thirds more of a pizza. How much pizza does Nora have now?

- Queen walks five-eighths of a mile to school every day. How far will Queen walk to school in three days?

Developing Key Ideas Examples

- Developing fraction names & equivalence ideas
- Extending to addition & subtraction fractions
- Extending to multiplication of fractions

Your Turn

- This morning, Vanessa drank more than two whole glasses of milk. How much milk could Vanessa have drunk? How much more milk does Vanessa need to drink to drink _____ whole glasses of milk today?

- Create your own problem that you could use with students in your class.

Thank you!!!

- Thank you for coming and for your participation in this session.
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