

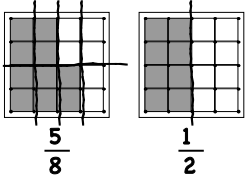
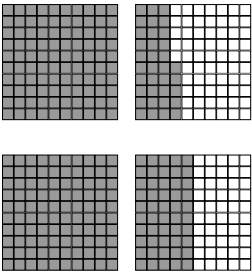
## Grade 4, Unit Six: Fractions & Decimals

In this unit your child will:

- identify fractions and decimals that are equal to each other
- compare decimal numbers and fractions
- add and subtract decimal numbers (including money amounts) using a variety of strategies



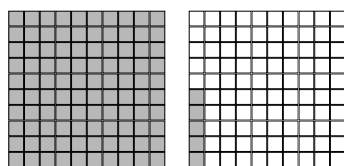
Your child will learn and practice these skills by solving problems like those shown below. Keep this sheet for reference when you're helping with homework.

Problem	Comments
<p>Write <math>&lt;</math>, <math>&gt;</math>, or <math>=</math> to show whether the fractions are equal or whether one is greater than the other. Make a labeled sketch to prove you are correct.</p> <div style="text-align: center;"> <math>\frac{5}{8} &gt; \frac{1}{2}</math> </div> <div style="display: flex; justify-content: center; align-items: center;">  <div style="margin-left: 20px;"> <p>You can see <math>\frac{5}{8}</math> is more than <math>\frac{1}{2}</math>.</p> </div> </div>	<p>By using visual models, students can compare fractions with different denominators (in this example, eighths and halves). Eventually, they use landmarks to help make comparisons (e.g., <math>\frac{4}{8}</math> is equal to a half, so <math>\frac{5}{8}</math> must be greater than a half). In fifth grade, they learn to rewrite the fractions with a common denominator to compare, add, and subtract them.</p>
<p>Last week the baby chick we hatched weighed 7.62 grams. This week it weighs 9.59 grams. How much weight did the chick gain?</p> <div style="text-align: center; margin-top: 10px;"> <math display="block">7.62 + 2.00 = 9.62</math> <math display="block">9.62 - 9.59 = 0.03</math> <math display="block">2.00 - 0.03 = 1.97</math> <p><b>The chick gained 1.97 grams.</b></p> </div>	<p>Some students might choose to use an algorithm like the one shown here to add and subtract decimal numbers in this unit.</p> <div style="text-align: right; margin-top: 10px;"> <math display="block">\begin{array}{r} 8 \\ 9.59 \\ - 7.62 \\ \hline 1.97 \end{array}</math> </div> <p>They are also encouraged to use other strategies (like the one at left) that show a good sense of number and that can be performed mentally.</p>
<p>Lucy ran 1.35 miles and Fiona ran <math>1\frac{1}{2}</math> miles. Who ran farther? Explain how you can tell.</p> <div style="display: flex; justify-content: center; align-items: center; margin-top: 10px;">  <div style="margin-left: 20px;"> <p><b>Fiona ran farther. You can see that <math>1\frac{1}{2}</math> is more than 1.35.</b></p> </div> </div>	<p>Students use visual models to compare fraction and decimal numbers. Later this year and in fifth grade, they will understand fractions and decimal numbers well enough to compare them without using pictures. For now, the pictures help students build a strong understanding of these numbers.</p>

## Frequently Asked Questions about Unit Six

**Q: Why are we using so many pictures to show fractions and decimals in the homework? Why not just use the numbers since that's what kids see in real life?**

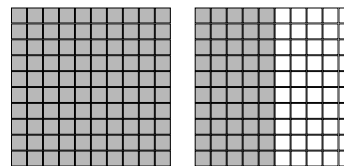
**A:** In Unit Four, students used models to see different fractions. In this unit, they use a square divided into 100 smaller squares to see decimal numbers and fractions. The model makes it clear, for example, that 1.05 is smaller than 1.5.



1.05

one and five hundredths

Each small square is one hundredth.



1.5

one and five tenths

Each column is one tenth.

It is true that students will eventually work with numbers alone. Right now, the pictures help them build a strong understanding of decimal numbers and the fractions that are equal to them.

**Q: Fractions are confusing and so are decimals. Why do them both at the same time? It seems like it will make things more confusing.**

**A:** We teach fractions and decimals together because they are both kinds of numbers that include part of a whole. Decimal numbers are a way to write fractions in which the denominator is 10, 100, 1000 and so on (tenths, hundredths, thousandths, etc.). The two examples below show how a number can be written as a decimal, as a fraction, or in words.

$$\begin{array}{r} 0.23 \\ \underline{23} \\ 100 \end{array}$$

twenty-three hundredths

$$\begin{array}{r} 2.3 \\ \underline{2 \quad 3} \\ 10 \end{array}$$

two and three tenths

It's true that to many students, decimals and fractions at first look like two completely different things, but when students study fractions and decimals together, they are learning to make sense of and calculate with numbers that include parts of a whole.