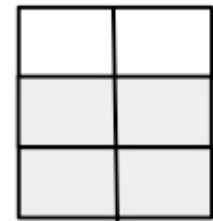
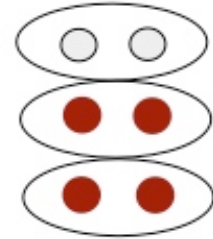


Equivalent Fractions

Question: How do you know that $4/6 = 2/3$?

Possible answers to the question are:

1. They are the same because you can reduce $4/6$ and get $2/3$.
2. If you have a set of 6 things and take 4 of them, that means you took $4/6$ of the 6 things. But you can make 6 into 3 groups of 2 and 4 into 2 groups of 2. Because six is 3 groups of 2 and four is 2 groups of 2, you took $2/3$ of the 6 things.
3. If you start with $2/3$, you can multiply top and bottom by 2. That gives you $4/6$. So $2/3$ is the same as $4/6$.
4. If you had a square cut into 3 equal parts and shaded 2 of those parts, you have $2/3$ of the square. If you cut each of the three parts of the square in half, you then have 6 equal parts in all. Of these 6 parts, 4 are shaded. So $2/3 = 4/6$.
5. If you make the tops and bottoms smaller in the same way, then this balances things out to keep the fraction the same.



All five answers are correct in some way. Answers 2 and 4 concern conceptual thinking (about WHY) but they do not provide an efficient procedure for making fractions equivalent. Answers 1 and 3 concern efficient procedures, but do not reveal any conceptual thinking about why $4/6 = 2/3$. Answer 5 concerns both conceptually thinking and points the way to an efficient procedure. However, it suggests that, for example, subtracting 1 from the top and bottom would also result in equivalent fractions. This is not the case.

Concept:

Two fractions are equivalent if they are representations of the same amount or quantity - that is to say if they are different names for the same number.

Procedure/Algorithm:

To get an equivalent fraction, multiply (or divide) the top and bottom of a fraction by the same nonzero whole number.

Refer to: [Grade 5 Fraction equivalency](#) if more help needed.