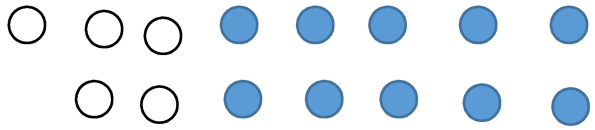
Two problems about equivalent fractions by grouping and dividing:

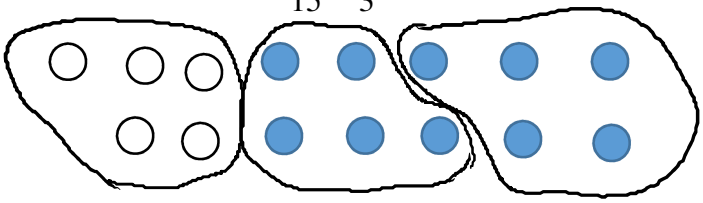
1.Explain how to show $\frac{10}{15}=\frac{2}{3}$ using this discrete model:



2. Explain how to use grouping and dividing to show how to simplify the fraction $\frac{9}{12}$

Good solutions:

1.Explain how to show $\frac{10}{15}=\frac{2}{3}$ using this discrete model:



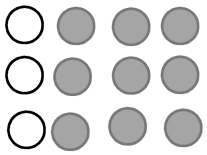
These chips show 15 chips total, and 10 of them are dark, so 10/15 of the chips are dark.

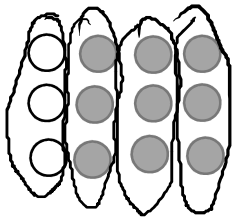
I can make groups of 5 chips, and there will be 3 equal groups ($15\div5$) with two groups that are dark ($10\div5$), so 2/3 of the chips are dark.

Both of these fractions describe this group of chips, so $\frac{10}{15}=\frac{2}{3}$

2. Explain how to use grouping and dividing to show how to simplify the fraction $\frac{9}{12}$

I can show 9 twelfths by having a whole that is made of 12 parts, and 9 of them are shaded. These chips show 12 pieces, and 9 of them are dark





I can make groups of 3 with my chips, and then I will have 4 groups of chips and 3 groups are dark, so $\frac{9}{12}=\frac{3}{4}$.

9 chips put into groups of 3 is $9\div3=3$ groups that are dark. 12 chips put into groups of 3 is $12\div3=4$ groups in the whole set.