**Fraction, Decimals and Percentages Prior Assessment Question 4:**
**Objective**: I can work out fractions in their simplest form.

NC: NFDP1: use common factors to simplify fractions; use common multiples to express fractions in the same denomination

## Teacher Input Ideas:

Recap with the children how to find equivalent fractions. Discus what knowledge the children used. How did they work these out? Ask the children to find equivalent fractions for ½, 2/10, 3/4.

Place 12/16 on the board. Ask the children if they can find an equivalent fraction? Discuss with the children that sometimes we can simplify fractions, meaning that we can find simpler way to say the fraction. Show visually on the board 12/16 (could be a rectangle split into 16; 4 rows of 4). What is this the same as? Establish 3/4. Display key words such as simplify, simplest form. Recap that yesterday many of the fractions were already in their simplest form and we found equivalent fractions by finding a common multiple. Today we want to find a common factor to help to simplify the fraction.

Look at 12/16 again. What common factors can we find for 12 and 16?  Start by modelling 2. Discuss that many people find this the easiest place to start. Can we half the numerator and the denominator?  6/8.   Now let's look to see if we can find a common factor? Again, we can find 2. Show that we can simplify it further to ¾. Ask the children if they can see another common factor which helped them.  Did anyone find a different way? Explore that 4 is a common factor in both. (3 x 4 = 12) (4 x 4 = 16) this would be 3/4.

Now try 12/15. Look at finding half first to help. Is 2 a factor of 12 and 15?  Let's now work systematically, is 3 a common factor? Yes (4 x 3 = 12) (5 x 3 = 15)   4/ 5.  We can't simplify any further as the denominator is a prime number, therefore this is as far as we can simplify.

Now encourage the children to find try 15/25.  For those struggling, fraction towers or fraction templates may help to visually see the link. Encourage children to use their knowledge that multiples of 5, end in 5.

Now look at 17/20. Once the children have had a try, look at the numerator together. What type of number is 17? Discuss that 20 is a composite number and has factors, however 17 is a prime number, therefore cannot be simplified any further.

## Practice Activities

**Purple Practice:** Most suited for children that made errors in **Question 4** and would benefit from visual representations to help simplify fractions.

By working through the sheet the children become lesson dependent on support from the use of the visual representations and are encouraged to find their own fractions. Questions 2 and 3 also provide the opportunity to work systematically so that the children can find as many different fractions as possible (See answers).

**Green Practice:** Most suited for children that were **confident in answering Question 4**.

This activity requires children to find a common factor to help them to identify the fraction in the simplest form. Encourage children to explore the most efficient methods, using their knowledge of factors to help. (for example, some children may always start with finding half first if possible and then looking at the possible factors. Some children may be able to see a common factor instantly).

In some of the questions the fraction cannot be simplified any further. This provides opportunity for the children to spot that either the numerator or denominator is a prime number.

**Yellow Practice**: Most suited for children that were **confident in answering Question 4** and have knowledge of number patterns when exploring multiples.

This activity requires children to find a common factor to help them to identify the fraction in the simplest form. Encourage children to explore whether finding half first or working through factors systematically is the most efficient method dependent on the fraction. Children will need to use written or mental division strategies for some questions.

In some of the questions the fraction cannot be simplified any further. This provides opportunity for the children to spot that either the numerator or denominator is a prime number.

**Mastery:** This activity provides the opportunity for the children to apply their knowledge of finding the fraction of the whole amount. The children will need to understand that all the groups will need to be combined to find the total and then work out the fraction of girls, adults and boys. These can then be simplified. The children then to work out how many children each adult will have. They will need to use their knowledge of division to help them to work this out and this also provides a fluency opportunity for the children to apply their knowledge of ratio and proportion.

**Answers:**

**Purple:**

Q1) **a)** 1/3          **b)** 1/5          **c)** 2/5          **d)** 2/3

**Q2)** 2/24 = **1/12**          3/24 = **1/8**          4/24 = 2/12 = **1/6**          6/24=3/12=**1/4**

8/24 =4/12= 2/6= **1/3**          9/24 = **3/8**     10 /24 = **5/12**          12/24= **1/2**

14/24 = **7 /12**   15/24 = **5/ 8**          16/24 = **2/ 3**          18/24 = **¾**

20/24 = **5/6**          21/24 = **7/8**

**Q3)** 3/45= **1/15**          5/45 = **1/9**     6/45= **2/15**          9/45 = **1/5**

10/45 = **2/9**          12/45 = **4/15**     15/45 = **1/3**   18/45 = 6/15 = **2/5**

20 /45 = **4/9**          21/45 = **7/15**          24 /45 = **8/15**

25 /45= **5/9**          27/45 = **3/5**          30/45 = **2/3**          33/45 = **11/15**

35/45 = **7/9**          36/45 = 12/15 = **4/5**          39 /45 = **13/15**

40/45 = **8/9**          42/45 = **14/15**

**Green:**

Q1)**3/4**          Q2)**1/5**          Q3)**3/4**          Q4)**7/8**

Q5) **2/3**          Q6) **½**          Q7) **5/6**          Q8) **9/10**

Q9) **4/15**          Q10)**9/11**          Q11) **3/5**          Q12) **3/5**

Q13) **3/5**          Q14) **59/70**          Q15) **99/101**

**Yellow:**

Q1)**1/4**          Q2)**7/8**          Q3)**61/68**

Q4)**38/63** (factor 6)     Q5) **17/19** (prime)          Q6) **63/74 (factor 6)**

Q7) **113/139** (prime)     Q8) **1½ or 3/2**          Q9) 7/6 or **1** 1/6

Q10) **11**          Q11) **9/8 or 1** **1/8**          Q12) **41/30 or 1**11/30

## Mastery

The fractions will be out of 108  ( 48 + 42 + 18 )

adults – 18/108 , 9/54, 3/18,  **Simplest form 1/6**

Girls :  48/108 , 24/54, 12/27, **Simplest form 4/9**
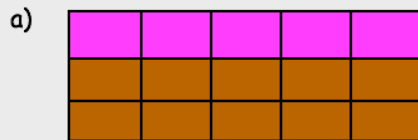
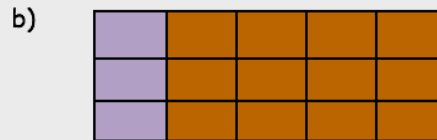Boys : 42/108 , 21/54,   **Simplest form 7/18**


## Extension

48 + 42 = 90

90 divided by 18 adults = 5

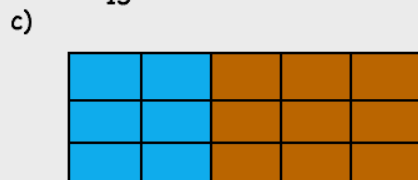ratio of adults to children is 1: 5

# BRICKWORK
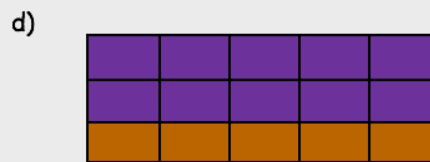## Mathematics

1. Work out the fraction in the simplest form.

a)

$\dfrac{5}{15}$ is the same as

b)

$\dfrac{3}{15}$ is the same as

c)

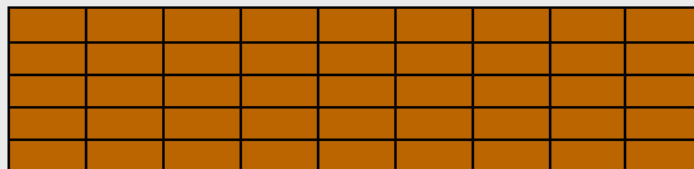$\dfrac{6}{15}$ is the same as

d)

$\dfrac{10}{15}$ is the same as

2. Look at these chocolate bars which both have 24 pieces. What different fractions can you find and can you find the simplest equivalent fraction?
Example: 3/24 = 1/8
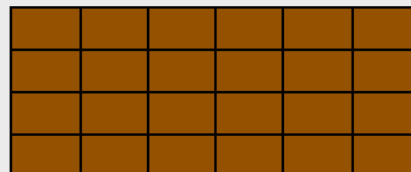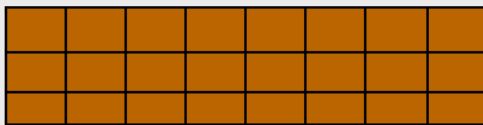
3. Find as many different fractions for 45 pieces of chocolate. Have you found each fraction in the simplest form?

**LO: I can find fractions in their simplest form.**

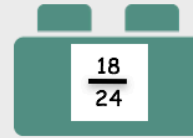Look at each fraction. Can you work out the fraction in the simplest form?
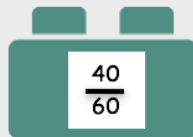
1) $\dfrac{12}{16}$

2) $\dfrac{9}{15}$

3) $\dfrac{18}{24}$

4) $\dfrac{21}{24}$

5) $\dfrac{40}{60}$

6) $\dfrac{15}{30}$

7) $\dfrac{25}{30}$

8) $\dfrac{27}{30}$

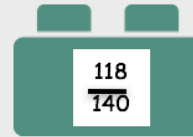9) $\dfrac{8}{30}$

10) $\dfrac{9}{11}$

11) $\dfrac{45}{75}$

12) $\dfrac{120}{200}$

13) $\dfrac{210}{350}$

14) $\dfrac{118}{140}$

15) $\dfrac{99}{101}$

Look at each fraction. Can you work out the fraction in the simplest form?

1) $\dfrac{22}{88}$

2) $\dfrac{350}{400}$

3) $\dfrac{122}{136}$

4) $\dfrac{228}{378}$

5) $\dfrac{17}{19}$

6) $\dfrac{376}{444}$

7) $\dfrac{113}{139}$

8) $\dfrac{12}{8}$

9) $\dfrac{35}{30}$
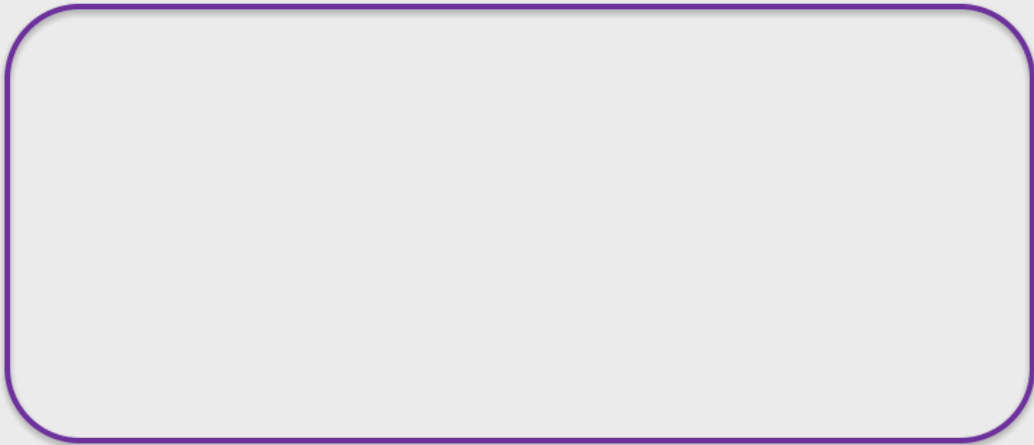
10) $\dfrac{88}{8}$

11) $\dfrac{135}{120}$

12) $\dfrac{123}{90}$

Look back at the strategies you used to work these out. Discuss with a partner their strategies and decide which strategies were the most efficient.

**BRICKWORK**
mathematics

On a school trip there are 48 girls, 42 boys and 18 adults. Find the fraction of:

- **adults**
- **girls**
- **boys**

Have you found the fraction in the simplest form?

**Extension: How many children will each adult have in their group?**

**TIPS:**
Explain how you worked this out.
Is there more than one way to find the answer
to this question? How will you prove to someone
else that your way to work this out is the most
efficient way?