


Tutorial 13 Fractions

The screenshot shows five horizontal fraction strips on a blue background. Each strip is divided into equal segments. The first strip is labeled $\frac{10}{30}$ and has 10 red segments followed by 20 green segments. The second strip is labeled 29% and has 5 red segments followed by 24 green segments. The third strip is labeled 1:2 and has 3 red segments followed by 6 green segments. The fourth strip is labeled $\frac{1}{4}$ and has 1 red segment followed by 3 green segments. The fifth strip is labeled 0.33 and has 2 red segments followed by 4 green segments. To the right of the strips is a control panel with a grid of buttons: a fraction $\frac{1}{30}$, buttons 'f', 'r', 'd', 'p', and a square with an 'x'. Below this are up and down arrows. The next row has $\frac{1}{17}$, 'f', 'r', 'd', 'p', 'x', and arrows. The third row has $\frac{1}{3}$, 'f', 'r', 'd', 'p', 'x', and arrows. The fourth row has $\frac{1}{4}$, 'f', 'r', 'd', 'p', 'x', and arrows. The fifth row has $\frac{1}{6}$, 'f', 'r', 'd', 'p', 'x', and arrows. At the bottom right are buttons for 'quit', 'f d p r', a color bar icon, 'reset', and 'i'. At the bottom left is a square with a left-pointing arrow. The text 'The National Numeracy Strategy' is at the bottom center.



Create three fraction strips by clicking on the  icon. You can display a maximum of five strips at one time.

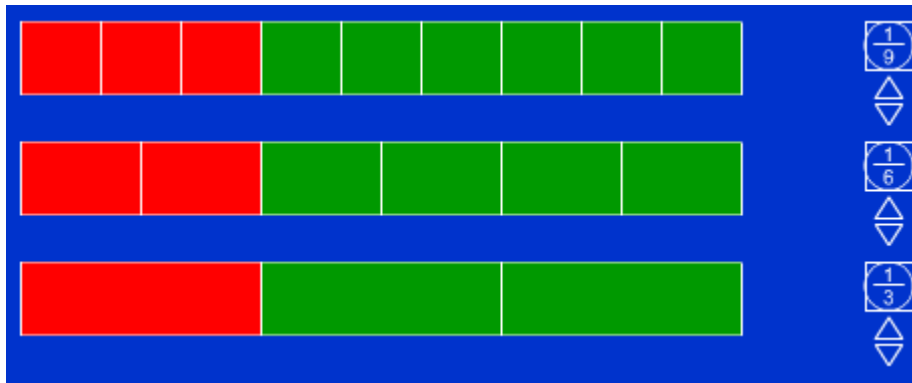


Set the denominator in each fraction by selecting the 'up' arrow.

Use this to display one strip divided into three sections, one strip divided into six sections and one strip divided into nine sections as shown below.

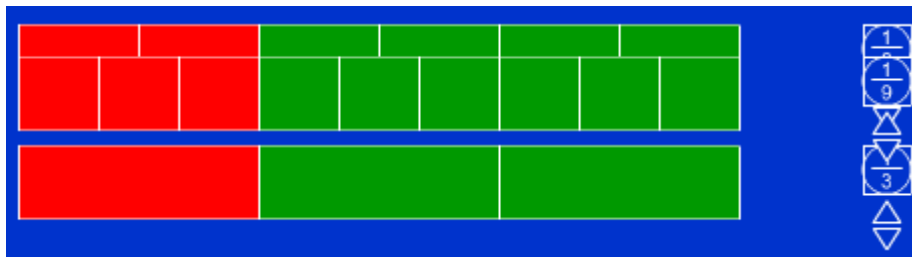
The screenshot shows three horizontal green fraction strips on a blue background. The top strip is divided into 9 equal segments and has a control panel to its right with a fraction $\frac{1}{9}$ and up/down arrows. The middle strip is divided into 6 equal segments and has a control panel to its right with a fraction $\frac{1}{6}$ and up/down arrows. The bottom strip is divided into 3 equal segments and has a control panel to its right with a fraction $\frac{1}{3}$ and up/down arrows.

Click on the strips on the screen to colour in yellow, a third on the first strip, two sixths on the second and three ninths on the third strip.



Q: Do these three strips represent equivalent fractions?


Overlap the strips to check to show this equivalence by clicking and dragging the fraction icons up and down. This will move the whole fraction strip as shown below.



This shows that the same lengths are coloured yellow and the fractions are equivalent. Return them to their original positions.


Q: What would each fraction be as a decimal?



Click on . A set of four letters will appear alongside each fraction. Click on the 'd' option to reveal the decimal fraction to three decimal places.

Note that the 'p' icon reveals the percentage; the 'f' displays the fraction to the left of the strip; and the 'r' displays the ratio. Ratio is always displayed *yellow : green* on this ITP.



Reset the Fractions ITP by clicking on the  icon twice, and remove the fdrp boxes.

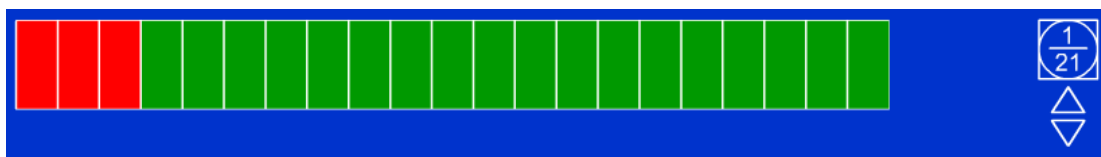
Display a fraction strip of sixths. Colour two sections in yellow as shown below.

Q: If the whole of this strip represents 18 what is the value of the yellow section?

You can use the interactive whiteboard tools to annotate the screen to show that as one section must represent 3, two sections represent 6.



Reset the Fractions ITP and display a strip with 21 sections.



Colour three sections yellow.

Q: If this strip represents the fraction $\frac{3}{21}$ what fraction could it be equivalent to?

Display and move a blank fraction strip to above the strip representing $\frac{3}{21}$. Increase the denominator on this new strip until its sections coincide with the block of three yellow sections to establish $\frac{3}{21}$ and $\frac{1}{7}$ are equivalent fractions.

Use the Fractions ITP to explore equivalence between fractions, decimals and percentages and to demonstrate how to calculate fractions and percentages of given amounts. Explore how the ITP can be used to set up and solve ratio and proportion problems.