

Fractions lesson by grade: four twenty-minute plans

Each plan: I do (5 min, one worked example with a picture), we do (10 min, five questions, the child writes), you do (5 min, two alone, one of them the check question). Start at the grade the child's gap is in.

Grade	Goal	I do: the model	We do	The check (listen for)
3 (CBSE 3-4)	A fraction is a number; unit fractions; the number line	A bar in quarters: $1/4$ is one part, $3/4$ is three of them; place $1/4$ to $4/4$ on a 0-1 line; $4/4 = 1$	Shade $2/3$; $1/2$ on a line; $3/8$ vs $3/4$; where are $2/2$ and $3/3$; $1/2$ vs $2/4$	Which is bigger, $1/8$ or $1/4$? (' $1/8$, because 8 is bigger')
4 (CBSE 4-5)	Equivalence; comparing; like denominators; fraction $\times$ whole	Cut halves into quarters into eighths: $1/2 = 2/4 = 4/8$; $2/5 + 1/5 = 3/5$ by counting fifths	Three fractions = $1/3$; $2/3$ vs $3/4$ over 12; $3/8 + 4/8$; $7/10 - 3/10$; $3 \times 2/5$	$1/4 + 1/4$ (' $2/8$ ')
5 (CBSE 5-6)	Unlike denominators; multiplying; unit fraction $\div$ whole	$1/2 + 1/3 = 3/6 + 2/6 = 5/6$; $1/2 \times 1/3$ on a square = $1/6$ (a part of a part)	$2/3 + 1/4$; $5/6 - 1/2$; $2/3 \times 3/4$; $4 \times 3/8$; $1/3 \div 4$	$1/2 \times 1/2$ ('1')
6 (CBSE 6-7)	Dividing fractions; ratios	$3/4 \div 1/8$: how many eighths in six eighths? 6; then $3/4 \times 8/1 = 6$	$1/2 \div 1/4$; $2/3 \div 1/6$; $5/6 \div 2/3$; $3 \div 1/2$; $3/4$ cup $\div 6$	Is $1/2 \div 1/4$ bigger or smaller than $1/2$? ('smaller')

The misconceptions, and the fix

The child says	Fix
$1/8 > 1/4$	Draw the pieces
$1/4 + 1/4 = 2/8$	Count the quarters on a bar
$2/3 = 2/6$ 'add 3'	Cut the pieces: multiply top and bottom
$1/2 \times 1/2 = 1$	A part of a part on a square
$6 \div 1/2 = 3$	How many halves in 6? Twelve
$3/4 \div 1/4 = 3/16$	How many quarters fit in three quarters? Three
2 $1/2$ as $2/12$	Mixed numbers on the number line

Worksheet: twenty questions by grade

Grade 3: 1. Shade $\frac{5}{6}$ of a bar. 2. Which is bigger, $\frac{1}{5}$ or $\frac{1}{3}$? 3. Where is $\frac{4}{4}$ on the number line? 4. Write $\frac{1}{2}$ as quarters. 5. Is $\frac{2}{3}$ more or less than $\frac{1}{2}$?

Grade 4: 6. Two fractions equal to $\frac{3}{4}$. 7. $\frac{5}{8} + \frac{2}{8}$ 8. $\frac{9}{10} - \frac{4}{10}$ 9. Which is bigger, $\frac{5}{6}$ or $\frac{7}{8}$? 10. $4 \times \frac{2}{3}$ as a mixed number

Grade 5: 11. $\frac{1}{2} + \frac{2}{5}$ 12. $\frac{3}{4} - \frac{1}{3}$ 13. $\frac{2}{5} \times \frac{3}{4}$ 14. $5 \times \frac{3}{10}$ 15. $\frac{1}{4} \div 3$

Grade 6: 16. $\frac{3}{4} \div \frac{1}{8}$ 17. $\frac{5}{6} \div \frac{2}{3}$ 18. $4 \div \frac{1}{3}$ 19. $\frac{2}{3}$ cup of flour makes 8 pancakes: flour per pancake? 20. $\frac{7}{8} \div \frac{7}{8}$

Answers

1) five of six parts 2) $\frac{1}{3}$ 3) at 1 4) $\frac{2}{4}$ 5) more 6) $\frac{6}{8}$, $\frac{9}{12}$ (any) 7) $\frac{7}{8}$ 8) $\frac{5}{10} = \frac{1}{2}$ 9) $\frac{7}{8}$ ($\frac{20}{24}$ vs $\frac{21}{24}$) 10) $\frac{8}{3} = 2 \frac{2}{3}$ 11) $\frac{9}{10}$ 12) $\frac{5}{12}$ 13) $\frac{6}{20} = \frac{3}{10}$ 14) $\frac{15}{10} = 1 \frac{1}{2}$ 15) $\frac{1}{12}$ 16) 6 17) $\frac{15}{12} = 1 \frac{1}{4}$ 18) 12 19) $\frac{1}{12}$ cup 20) 1

Which lesson does the child need?

Ask the four check questions in order ($\frac{1}{8}$ vs $\frac{1}{4}$; $\frac{1}{4} + \frac{1}{4}$; $\frac{1}{2} \times \frac{1}{2}$; $\frac{1}{2} \div \frac{1}{4}$). The first one answered wrongly names the lesson to start with, whatever the child's grade.

Session log

Date	Lesson (grade)	Check question right?	Next

From

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