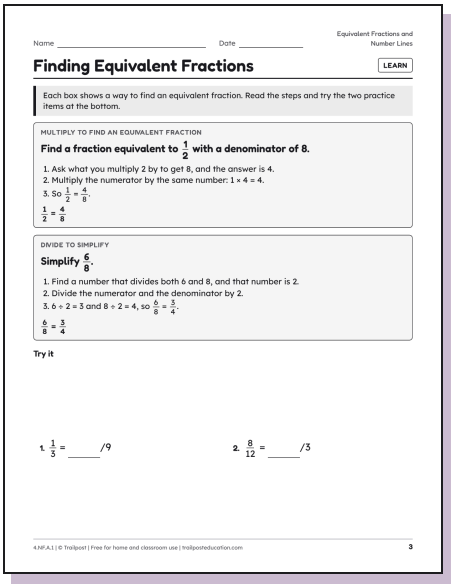
FREE TEACHER GUIDE AND INSTALL GUIDE

Equivalent Fractions and Number Lines

Unit fractions, equivalent fractions, and comparing fractions with models and number lines

Grades 3 to 5 | **Math** | **16 student pages** | **Full answer key**



Name _____ Date _____ Equivalent Fractions and Number Lines

Finding Equivalent Fractions LEARN

Each box shows a way to find an equivalent fraction. Read the steps and try the two practice items at the bottom.

MULTIPLY TO FIND AN EQUIVALENT FRACTION

Find a fraction equivalent to $\frac{1}{2}$ with a denominator of 8.

1. Ask what you multiply 2 by to get 8, and the answer is 4.
2. Multiply the numerator by the same number: 1 × 4 = 4.
3. So $\frac{1}{2} = \frac{4}{8}$.

$\frac{1}{2} = \frac{4}{8}$

DIVIDE TO SIMPLIFY

Simplify $\frac{6}{8}$.

1. Find a number that divides both 6 and 8, and that number is 2.
2. Divide the numerator and the denominator by 2.
3. 6 ÷ 2 = 3 and 8 ÷ 2 = 4, so $\frac{6}{8} = \frac{3}{4}$.

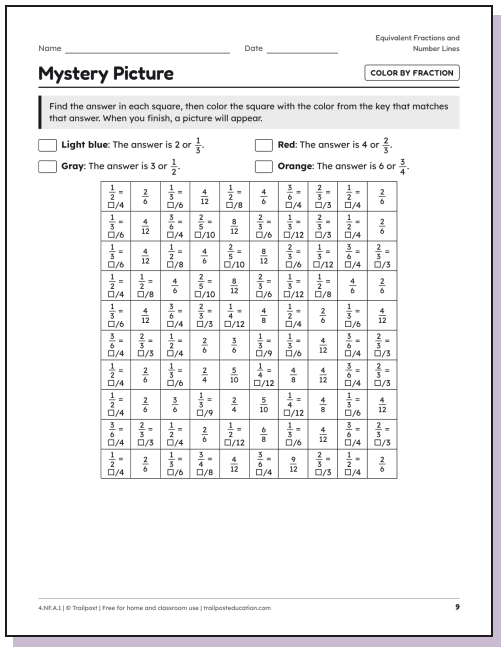
$\frac{6}{8} = \frac{3}{4}$

Try it

1. $\frac{1}{3}$ = ____/9

2. $\frac{8}{12}$ = ____/3

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Name _____ Date _____ Equivalent Fractions and Number Lines

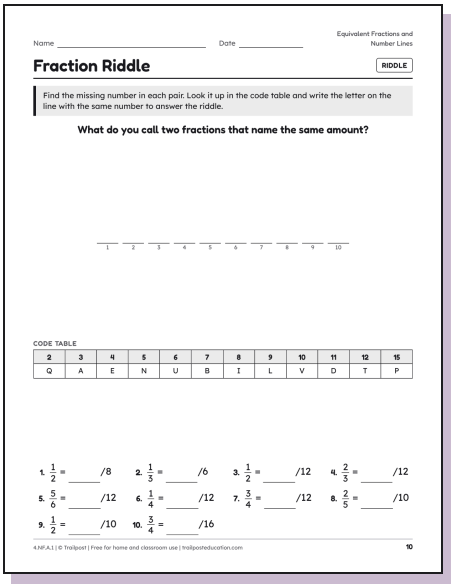
Mystery Picture COLOR BY FRACTION

Find the answer in each square, then color the square with the color from the key that matches that answer. When you finish, a picture will appear.

☐ **Light blue**: The answer is 2 or $\frac{1}{3}$.
☐ **Red**: The answer is 4 or $\frac{2}{5}$.
☐ **Gray**: The answer is 3 or $\frac{1}{2}$.
☐ **Orange**: The answer is 6 or $\frac{3}{4}$.

$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$	$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$	$\frac{1}{2} = \frac{}{8}$	$\frac{4}{6}$	$\frac{5}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$	$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$
$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$	$\frac{3}{6} = \frac{}{4}$	$\frac{2}{5} = \frac{}{10}$	$\frac{8}{12}$	$\frac{2}{3} = \frac{}{6}$	$\frac{1}{3} = \frac{}{12}$	$\frac{2}{3} = \frac{}{3}$	$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$
$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$	$\frac{1}{2} = \frac{}{8}$	$\frac{4}{6}$	$\frac{2}{5} = \frac{}{10}$	$\frac{8}{12}$	$\frac{2}{3} = \frac{}{6}$	$\frac{1}{3} = \frac{}{12}$	$\frac{3}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$
$\frac{1}{2} = \frac{}{4}$	$\frac{1}{2} = \frac{}{8}$	$\frac{4}{6}$	$\frac{2}{5} = \frac{}{10}$	$\frac{8}{12}$	$\frac{2}{3} = \frac{}{6}$	$\frac{1}{3} = \frac{}{12}$	$\frac{1}{2} = \frac{}{8}$	$\frac{4}{6}$	$\frac{2}{6}$
$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$	$\frac{3}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$	$\frac{1}{4} = \frac{}{12}$	$\frac{4}{8}$	$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$	$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$
$\frac{3}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$	$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{1}{3} = \frac{}{9}$	$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$	$\frac{3}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$
$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$	$\frac{1}{3} = \frac{}{6}$	$\frac{2}{4}$	$\frac{5}{10}$	$\frac{1}{4} = \frac{}{12}$	$\frac{4}{8}$	$\frac{4}{12}$	$\frac{3}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$
$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{1}{3} = \frac{}{9}$	$\frac{2}{4}$	$\frac{5}{10}$	$\frac{1}{4} = \frac{}{12}$	$\frac{4}{8}$	$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$
$\frac{3}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$	$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$	$\frac{1}{2} = \frac{}{12}$	$\frac{6}{8}$	$\frac{1}{3} = \frac{}{6}$	$\frac{4}{12}$	$\frac{3}{6} = \frac{}{4}$	$\frac{2}{3} = \frac{}{3}$
$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$	$\frac{1}{3} = \frac{}{6}$	$\frac{3}{4} = \frac{}{8}$	$\frac{4}{12}$	$\frac{3}{6} = \frac{}{4}$	$\frac{9}{12}$	$\frac{2}{3} = \frac{}{3}$	$\frac{1}{2} = \frac{}{4}$	$\frac{2}{6}$

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Name _____ Date _____ Equivalent Fractions and Number Lines

Fraction Riddle RIDDLE

Find the missing number in each pair. Look it up in the code table and write the letter on the line with the same number to answer the riddle.

What do you call two fractions that name the same amount?

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____
1 2 3 4 5 6 7 8 9 10

CODE TABLE

2	3	4	5	6	7	8	9	10	11	12	15
Q	A	E	N	U	B	I	L	V	D	T	P

1. $\frac{1}{2}$ = ____/8
2. $\frac{1}{3}$ = ____/6
3. $\frac{1}{2}$ = ____/12
4. $\frac{2}{3}$ = ____/12
5. $\frac{5}{6}$ = ____/12
6. $\frac{1}{4}$ = ____/12
7. $\frac{3}{4}$ = ____/12
8. $\frac{2}{5}$ = ____/10
9. $\frac{1}{2}$ = ____/10
10. $\frac{3}{4}$ = ____/16

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STUDENTS WILL LEARN TO

- ✔ Place a fraction on a number line between 0 and 1, and beyond 1
- ✔ Find equivalent fractions with models and by multiplying
- ✔ Simplify a fraction to lowest terms
- ✔ Compare two fractions with <, >, or =

A free resource from Trailpost

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Getting started

What is in your download

File	What it is
Student-Pages.pdf	The 16-page student packet, starting with a cover page that has a name line and a table of contents.
Answer-Key.pdf	The same pages with every answer filled in, so you can check work quickly or project a page to go over it together.
Teacher-Guide.pdf	This guide, which explains how to print the packet, how to pace it, and which standards it covers.

How to open the files

1. On a Chromebook, open the Files app, double-click the zip folder, and drag the three PDFs into Google Drive or onto the desktop.
2. On a Windows computer, right-click the zip folder and choose Extract All, then open the new folder that appears.
3. On a Mac, double-click the zip folder and a regular folder with the three PDFs will open next to it.
4. Open each PDF in your browser or in any PDF reader, and you are ready to print.

How to print

- Set the print scale to Actual Size or 100 percent so the boxes and lines stay the right size for student handwriting.
- Black and white printing works well, because every page uses black lines and light gray shading.
- Print pages 7 and 15 on one side only, because students cut those pages apart.
- The exit ticket page holds two copies of the same ticket, so one printed page covers two students.

One star and two stars

Pages marked with one star (5) give steady practice with friendly numbers and extra support. Pages marked with two stars (6, 12) ask for more steps and more explaining. Students who finish the one-star page with few mistakes can move straight to the two-star page, and students who need more time can do the one-star page twice with a partner.

Using the answer key

The answer key matches the student packet page for page, so page 6 of the key answers page 6 of the student packet. Written answers in the key are sample answers, and any answer that gives the same idea with good reasoning should earn credit.

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What is inside

Students place fractions on a number line, find equivalent fractions, simplify, and compare fractions using benchmarks and common denominators. The packet moves from guided pages to two levels of practice, puzzles, word problems, error analysis, a writing page, a review, exit tickets, and a self-check.

Page	Title	What students do
1	**Cover**	Students write their name and see a list of every page in the packet.
2	**What a Fraction Means** Learn | 3.NF.A.2	Students see a fraction as equal parts of a whole and as a point on a number line, and they learn the words numerator and denominator.
3	**Finding Equivalent Fractions** Learn | 4.NF.A.1	Students learn to find equivalent fractions by multiplying the numerator and the denominator by the same number, and to simplify by dividing.
4	**Fractions on a Number Line** Guided Practice | 3.NF.A.2	Students read and place fractions on number lines cut into halves, thirds, fourths, and sixths.
5	**Equivalent Fractions Practice** Practice ★ | 4.NF.A.1	Students find missing numerators and denominators in equivalent fraction pairs, then simplify.
6	**Compare Fractions** Practice ★★ | 4.NF.A.2	Students compare fractions using benchmarks, common denominators, and number lines.
7	**Sort the Fractions** Cut and Paste | 4.NF.A.2	Students compare twelve fractions to one half and glue each card in the right column.
8	**Match the Model to the Fraction** Match | 3.NF.A.3	Students match eight descriptions of models to the fractions they show, then write an equivalent pair.
9	**Mystery Picture** Color by Fraction | 4.NF.A.1	Students find the missing number or simplified fraction in each square and color it to reveal a rocket.
10	**Fraction Riddle** Riddle | 4.NF.A.1	Students find missing numbers in equivalent fractions and use a code table to answer a riddle.
11	**Fraction Word Problems** Apply | 3.NF.A.3, 4.NF.A.2	Students solve four word problems about equivalent fractions, comparing, and parts of a whole.
12	**Find the Mistake** Error Analysis ★★ | 4.NF.A.1, 4.NF.A.2	Students study two pieces of student work about equivalent fractions and comparing, explain each mistake, and try a new problem.
13	**Explain Your Strategy** Write About Math | 4.NF.A.1	Students explain how to find an equivalent fraction and how to compare two fractions, then draw a model.
14	**Mixed Review** Review | 3.NF.A.2, 4.NF.A.1, 4.NF.A.2	Students review equivalent fractions, simplifying, comparing, and two word problems.
15	**Exit Tickets** Check | 4.NF.A.1, 4.NF.A.2	Two copies of a short exit ticket on each page so you can check understanding in about five minutes.
16	**How Did I Do?** Self-Check | 3.NF, 4.NF	Students rate their own progress on each skill and set one goal for practice.

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Pacing and standards

A suggested plan

Day	Pages	What to do
Day 1	2 to 4	Read the two Learn pages together and talk through each model, then have partners finish the guided page while you check in.
Day 2	5 to 6	Students start with the one-star page and move to the two-star page when they finish with few mistakes.
Day 3	7 to 10	Use the sort, the match, the mystery picture, and the riddle as centers or as a fun Friday set.
Day 4	11 to 13	Students solve the word problems, find the mistakes on the error page, and explain a strategy in writing.
Day 5	14 to 16	Give the review page as a quiz, use the exit ticket the next morning, and finish with the self-check.

Standards

Code	Standard
3.NF.A.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram.
3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
4.NF.A.1	Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
4.NF.A.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2.

Teaching tips

- Keep fraction strips or folded paper at each table during the first two days, so students can see that $\frac{2}{4}$ and $\frac{1}{2}$ cover the same amount of the strip.
- The mystery picture and the riddle check themselves, because a wrong fraction gives a color or a letter that looks wrong.
- Ask students to say the benchmark out loud before they compare, because thinking about one half first makes comparing much easier.

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Thank you for downloading this packet

I made this packet for families and teachers who need solid practice pages that are ready to print tonight, and I hope it saves you some planning time this week.

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Something look wrong?

If you find a mistake on a page or in the answer key, please email support@trailposteducation.com. I read every message, and I will fix the file and post the new version for everyone.

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More free Trailpost packets

These packets are also free on the Trailpost website, and each one comes with an answer key and a teacher guide like this one.

- **Addition and Subtraction Within 20** | Math, grades 1 to 2
- **Claim, Evidence, Reasoning with Data** | Science, grades 6 to 9
- **CVC Words and Short Vowels** | ELA, grades K to 1
- **Ecosystems and Food Webs** | Science, grades 4 to 6
- **One-Step and Two-Step Equations** | Math, grades 6 to 8
- **Figurative Language** | ELA, grades 4 to 6
- **Main Idea and Key Details** | ELA, grades 3 to 5
- **Map Skills** | Social Studies, grades 3 to 5
- **Multiplication Fact Strategies** | Math, grades 3 to 4
- **Citing Text Evidence** | ELA, grades 5 to 8
- **Telling Time and Counting Money** | Math, grades 2 to 3

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Fractions Pizzeria

GRADES 3 TO 6 | DIGITAL GAME

Students fill pizza orders by building fractions in an offline arcade game.

See it in the shop



Math Mahjong

GRADES 3 TO 7 | DIGITAL GAME

Students clear a Mahjong board by matching fraction problems to their answers.

See it in the shop



Math Maker

GRADES 2 TO 6 | CLASSROOM TOOL

Teachers print as many math practice pages as they need, and each page comes with its own answer key.

See it in the shop



I Forgot Math

GRADES 2 TO 12 | CLASSROOM TOOL

Students look up 204 math concepts, and each one has a formula and two worked examples.

See it in the shop



Area and Perimeter Garden

GRADES 3 TO 6 | DIGITAL GAME

Students fill sod and fence orders in a pixel-art garden to practice area and perimeter.

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Dogger

GRADES 3 TO 6 | DIGITAL GAME

Students hop a dog across the road by landing on the right multiples and factors.

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