

Place Value
Base 10 system
Metric

10 Decimals
Whole Numbers

Looks like
 $0.50 = \frac{1}{2} = 50\%$
Partial Numbers

1000 000s Millions	100 000s hundred thousands	10 000s ten thousands	1 000s thousands	100s hundreds	10s tens	1s ones	0.1 tenths	0.01 hundredths	0.001 thousandths	0.0001 ten thousandths
			kilo-	hecto-	deci-	centi-	milli-			

Working from ONE to the whole
IF \square is ONE, then
IF \square is ONE, then

10 meter stick base unit for length	10m 10ths	1m 10ths	100m 100ths	1000m 1000ths
10 0.1 of a meter decimeters	cube	cube	cube	cube
10 0.01 of a meter centimeters	100ths	100ths	100ths	100ths
10 0.001 of a meter millimeters	1000ths	1000ths	1000ths	1000ths

Decimals and Fractions
How they relate to each other

ONE

ONE

$\frac{0.40}{\text{decimal}} = \frac{40}{100} = \frac{4}{10}$
part
fraction

$\frac{0.04}{\text{decimal}} = \frac{4}{100}$

Standards
We will add and subtract decimals to the 100ths.

What we know...
Inquires what we want to learn...

- Use will extend base-ten place value to decimals.
- We will understand the metric system and its relationship to decimals.
- We will use models to show how whole numbers and decimals (to 100ths) relate to simple fractions.

- use models to show how whole # & decimals (to 100ths) relate to simple fractions
- recognize & generate equivalent decimal forms of commonly used fractions

Unit 4: Decimals & Their Uses

UNIT PLANNING TOOL

- Unit Goals:**
- Extend base-ten Place Value to decimals
 - Review & extend basic concepts, notation, and application of decimals
 - addition/subtraction w/ decimals
 - metric system & relations to decimals

- add/subtract decimals (2 places)
- use strategies to estimate computations involving fractions/decimals
- carry out simple conversions w/in a system

Key Concepts

- Concept of Decimals (number)
- Relationship b/w decimals - fractions
- + / - Decimals
- metric - powers of 10

Place Value Visual Models of Concepts

ONE

$40 = \frac{40}{100} = \frac{4}{10}$

decimal fraction $\frac{40}{100}$ $\frac{4}{10}$ decimal

Base-10

	Frac	Dec
10		
11	$\frac{2}{100}$	0.02
12	$\frac{5}{1000}$	0.005
13	$\frac{123}{1000}$	0.123

Algorithms/Diagrams

1000s | 100s | 10s | 1s | 0.1s | 0.01s | 0.001s

thousands | hundreds | tens | ones | tenths | hundredths | thousandths

$\div 10$ $\div 10$ $\div 10$ $\div 10$ $\div 10$ $\div 10$ $\div 10$

$\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

0.01 0.02 0.03 0.04 | 0.1 0.2 0.3 0.4 | 0.5 | 0.6 0.7 0.8 0.9 | 1

basic equivalencies

$\frac{1}{10} = \frac{1}{20}$
0.1 0.2

meter stick

base unit for length

$\div 10$
10 decimeters

$\div 10$
100 centimeters

Connections (Real World Applications)

- use with money — stock market
- sports - racing — running, walking, swimming
- technology — batting averages
- internet — space
- speed
- measurement
- nutritional labels
- science technology
- business
- sports

Compare

the decimal _____ is the same as the fraction _____

Language Functions/Structures

observe

The metric increases by _____ from one _____ to another _____.

Contrast

$\frac{4}{10}$ is different than $\frac{4}{100}$ because _____.

balance		deposit		Vocabulary		trip meter		whole	
centimeter (cm)	hundredth	interest	meter (m)	ONE	unit	withdrawal			
decimal	thousandth	meter (m)	thousandth	personal reference	measurement				
decimeter (dm)		speedometer		fraction					

Focus & Motivation

Place Value of Decimals (Video) - Study Jams

EDM online Games: Top-it Decimals

Memory Match - Decimal/Fraction

Frac-tic-Toe: Decimals (Partner)

Brainpop - Decimals (concept)

Place Value Rap - teacher tube

Brain Pop - Games Battleship
Flower Power

Interesting

Decimals were invented by the Dutch scientist Simon Stevin in 1585.

US — 3.28

England — 3.28

Germany

+ France — 3,28

Egyptian Place Value

1 10 100 1000 10,000 100,000 1,000,000 10,000,000

Our system originated in India, improved in Arabia

Resources

EDM - Student Reference Book

Games

EDM 42/417 - Base 10 Exchange

43 - Coin Top-it

44, 49 - Number top-it Decimals

Literature

The Everything Kid's Joke Book

by Michael Dahl

Kid's Funniest Jokes edited by Sheila Anne Barry

If you Hopped Like a Frog by David M. Schwartz

Count your way through Africa by Jim Haskins

Indians and a Half by Elinor J. Pinczes