Converting Fractions and Decimals

An Instructional Manual

TAT2 – Task 3

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Overview

Instructional Goal

At the end of the unit of instruction, students will match the correct conversions of decimal and fraction numbers.

Audience

The students attend an elementary school in Poinciana, Florida. All of the lessons will take place with a group of 21 fourth graders in the same class. The lessons will be on a math unit with the topic of converting decimals into fractions and fractions into decimals. The population of students are 91% Hispanic, 9% African American, and 2% Caucasian. Of the Hispanic students in my classroom one is a non-English speaker, two are limited-English speakers, and the others are fluent in the English language. Most students in the fourth grade math class perform below standards as reflected on state assessments.

Length

This unit is designed for eight days of instruction with one extra day for assessment. The total length of sessions is nine days, at forty-five minutes in each lesson. This amounts to a total of six hours and forty-five minutes.

Delivery Approach

The general format of this instructional unit is through short interactive lecture, with students repeating information with assigned gestures to remember new math concepts, followed by notes and student practice time. Most of the math blocks are dedicated to student activities and practice work. Direct instruction is limited to take no longer than ten minutes, most of which take less than five minutes to introduce or review math concepts to allow the most practice time possible for the students.

Instructional Sequence

The unit is sequenced by reviewing place value, instruction in place values with decimal numbers instruction, then instruction and practice with converting between decimals and fractions, and learning and practicing how to convert between fractions and decimals. The last day before the test is a review assignment to summarize all learning material. There will be ten days for this unit of study, with 45 minutes a day on instruction and practice for 8 out of the 9 days. The last day will be test day in which students will review the unit for the first ten minutes of the math block and then have the next thirty-five minutes to take the test. The lessons will follow the five steps in Dick and Carey's model: 1) Pre-instructional activities; 2) Content presentation; 3) Learner participation; 4) Assessment; 5) Follow-through activities. The first part of this model is used when the teacher gives the students the objective, the warm-up work, and goes over the warm-up answers to activate prior-knowledge (Dick, 2015, p. 176). The lessons that introduce a new concept will spend more time on the first two steps. The next few lessons in the sequence will have a stronger emphasis on learner participation and follow-through activities. Assessment will be blended in formally and informally throughout the entire lesson so that the teacher may adjust instruction as needed.

Materials Needed: Overview

The type of materials that will be used in this unit include various types of paper (cardstock, copy, and construction), writing tools for students and teacher, tape, and scissors.

Plan of Instruction

Each lesson is designed for maximum student practice time and keeps student engagement levels high. Technology is included in every lesson except for lesson 9, which is the lesson the students will take their unit assessment. Each lesson is broken down in overviews below:

Lesson One: This lesson will begin the unit of instruction by note taking decimal place values. Students will practice writing decimal numbers in numerical and word form based on place

value by playing a class game and then the teacher will assess students through a worksheet in which students identify place values of decimal numbers.

Lesson Two: The start of this lesson will review the previous day's lesson with three questions about place values. The teacher will then teach the students directly what the place values of decimal numbers are and demonstrate what the place values look like. Students will practice on a place value mat for this skill followed by a worksheet for identifying place value names for decimals. This worksheet will be the assessment.

Lesson Three: This lesson will require students to take notes on how to convert decimal numbers into fractions then practice this new skill by wearing number signs on their head (sweatband style) that tell each other what number they represent. Finally, students will be assessed with a conversion worksheet.

Lesson Four: Students will learn how to convert decimals into base ten fractions by the teacher first reviewing converting decimals to fractions with gestures and orally lecturing; students will participate in this lecture by repeating the chunks of information with gestures and words. The practice activity is a foldable for this skill followed by an assessment worksheet with missing numerators that must be filled in based off of the students' knowledge of conversion.

Lesson Five: This lesson will be the last with a focus on converting decimals to fractions only. Students will first review the steps with their neighbor, on how to convert decimals to fractions and then students will complete a notebook activity in which they have to match decimal and fraction number pairs. The students will be assessed individually in front of the teacher with a sorting activity for this skill.

Lesson Six: Students will learn how to convert fractions into decimal numbers. This will be done with a brief teacher lecture, a matching card game for student practice, and then the students

will answer the question on the Mindmeister website that the teacher poses as the assessment for the day's lesson. Students will need to answer the question posed by two classmates as well.

Lesson Seven: Students will continue learning how to convert fractions into decimal numbers by reviewing the previous day's lecture briefly and then students will practice with place value mats and whole number cards; the value mats have a decimal point on them so that the students can focus on place value without moving the decimal position. The teacher will call out fractions that need to be made into decimals on the mats. Finally, students will need to work independently on the worksheet given to assess their knowledge so far.

Lesson Eight: This is the last lesson before the test is given and is therefore treated as a culminating activity to review and ensure all students are confident with their knowledge going forward. The teacher will start the lesson by leading in a brief lecture review and practice session in which the students practice three problems orally with a partner. Then students will be assigned groups to create a poster display teaching their classmates how to convert fractions and decimals by showing three sets of equivalent decimal and fraction pairs. Students are to use visual representations of the numbers, show their thinking, and explain how converting works for their examples.

Lesson Nine: The teacher will review the unit content and answer student questions before taking the end of unit test. Students will take this test independently.

Student Performance

Students will be assessed formatively and summatively. After each lesson, there will be an exit ticket question or a student requirement to discuss the lesson on the computer that will be used as a formative assessment daily. Students will also be assessed through teacher observations and notes taken during student work sessions daily. The summative assessments will be a student created poster assignment that the students will be required to create fraction and decimal

conversions and provide an explanation paragraph for the teacher to evaluate, an end of unit test,

and the FSA math exam in April.

Pedagogies and Strategies

The unit used the strategy of Gagne's nine events of instruction and the Dick and Carey five

step instructional component model. The design of each lesson plan follows the five steps in Dick

and Carey's model: 1) Pre-instructional activities; 2) Content presentation; 3) Learner participation;

4) Assessment; 5) Follow-through activities. The first part of this model is used when the teacher

gives the students the objective, the warm-up work, and goes over the warm-up answers to activate

prior-knowledge (Dick, 2015, p. 176). The content presentation happens whole group style in each

of the lessons. The content is presented either through notes in a foldable or through an oral

repetition of a teacher chunking the information. Learners then participate in an activity with other

classmates that allow the students to practice the math presented to them. The follow-through

activities are done in the fifth step of each lesson plan to give the students additional practice, with

little help from other people so that they can try without distraction and will lose doubt in their

abilities. This strategy is used to make sure students have time to get the information, practice

multiple times, and retain the information.

Gagne's nine events reinforces learning through scaffolding instruction. Students are given a

chance to practice skills that they have learned before in each lesson. This strategy is used during

the warm-up, during guided practice when the teacher asks questions to the students about the

concepts, and when the students are reviewing the lesson. This strategy focuses on bringing the

information learned previously and using it to help the students learn new skills. It focuses on the

process of retaining information also through repetition. Each lesson repeats information gained in a

previous lesson and gives students many opportunities to practice their skills with both teacher and

classmates help.

Instructional Materials

The following instructional materials are used in this unit of instruction.

☐ Questions to use for Bellwork   ☐ Fraction Number Cards

☐ Decimal Place Value   ☐ Converting Decimals

  Worksheet   Worksheet

☐ Place Value Cards   ☐ Foldable

☐ Foldable   ☐ Foldable

☐ Decimal number list   ☐ Missing Numerators Worksheet

☐ Place Value Naming Worksheet   ☐ Fraction to Decimal Worksheet

☐ Place Value Mat   ☐ Fraction Strips

☐ Whole Number Cards   ☐ Decimal Grids

☐ Converting Fractions and Decimals Assessment

Physical Resources

The following resources are required

☐ teachers' computer   ☐ Tape

☐ Student computers   ☐ Teacher Marker Board

☐ Headphones   ☐ Scissors

☐ Speakers   ☐ Lamination for activities

☐ Microphone   ☐ Dry erase markers

☐ Projector   ☐ Individual student marker boards

☐ Paper (Computer and card stock)   ☐ Document camera

☐ Pencils

Lesson Plans

Lesson Plan 1

Title: Decimal Place Values

Lesson Overview: Students will learn how to write, read, and select place values of decimal numbers.

Resources or Materials Needed

- ☐ Colored cardstock (one per student, one for teacher to write on)

- ☐ Markers (2 colors; washable)

- ☐ Pencils

- ☐ Worksheet

- ☐ White board (marker board)

- ☐ Place value cards for white board

- ☐ Dry erase markers

- ☐ Scissors

Lesson Objectives: Given 10 decimal numbers, students will identify place values 8 out of 10 times.

Time: 45 minutes

Step 1: Pre-Instructional Activities

Students will begin the lesson with a set of whole numbers that the students will be asked to find the place value of the underlined number. There will be three questions projected onto the white board. Students will have two minutes to work the questions out. The teacher will go over the answers as a class to activate prior knowledge of place value systems.

Step 2: Content Presentation

The teacher will pass out the colored cardstock for students to follow along with her speaking

and examples. The teacher will instruct the students to fold their cardstock in half, vertically. The

students will then be instructed to cut the top layer into smaller sections, 4 total sections (teacher

demonstrates first then the students copy). The students and teacher will then draw dividing lines

on the lower half, inside the fold, that match the cut sections. The teacher will then have the

students label the top, front side of the cardstock (not inside) with the place values of a decimal

number. The teacher will explain to the students that decimal numbers can have a whole number

that is in the ones place, the decimal point goes after this place value, then the tenths, and

hundredths places. The teacher will write the number form on the top sheet and ask the students

to tell her what the next place value would be if they continued past the ones (tens) and past the

hundredths (thousandths). Fourth grade is not expected to go beyond the hundredths place

therefore the foldable does not exceed this number. The students will then be instructed to write

the new place value terms inside the top flaps to use as notes throughout their unit. Teacher will

circulate while students take notes to ensure they are writing the correct information; teacher will

write information on the marker board as well.

Step 3: Learner Participation

Students will then participate in the guided practice stage by forming groups of 4 or 5 to think

about answers to the questions the teacher will ask. The teacher will place the place value cards

on the marker board to reinforce the place values of decimal numbers. The teacher will say

decimal numbers orally and students will have thirty seconds to select a member of their group to

go up to the board and write the number in numerical and word form. The first team to correctly

write the decimal number in both forms will earn a point. The game will continue until a team has five points.

Step 4: Assessment

Students will be given a worksheet with ten decimal numbers that they must identify the place values of 8 out of the 10 numbers that have underlines to them. Students may work in pairs or independently.

Step 5: Follow-Through Activities

This lesson is used as a baseline to start the students learning the objective of the unit: converting decimals and fractions into their equivalent pairs. Students must have this foundation first before we continue: find place values and name decimal numbers. This skill will be tested in each future lesson as it is necessary to identify place values of decimals in order to convert them into base ten fractions.

Lesson Plan 2

Title: Writing Decimals

Lesson Overview: Students will learn how to identify place values of decimal numbers.

Resources or Materials Needed

☐ Pencils

☐ Worksheet

☐ Place value mat

☐ Whole number cards (laminated)

☐ Computer with speaker and recording ability

☐ Headphones

Lesson Objectives: : Students will be able to write the place value names of decimal numbers 5

out of 5 times when given a worksheet with 5 decimal numbers with underlined place values.

Time: 45 minutes

Step 1: Pre-Instructional Activities

The students will answer three questions on the marker board that review place values of

numbers. The teacher will call students up to the marker board to answer the questions and tell

why their answers are correct.

Step 2: Content Presentation

Students will tell their neighbor what they know about place values. The teacher will ask a few

students to share what their neighbor said. The teacher will then begin the lesson by asking the

students to mirror her gestures as she speaks. "Decimal point [holds a fist up] separates whole

numbers from parts of a whole number [moves other hand from the right side of fist to the left

side of fist]. Parts of a whole are decimal numbers [keep hand on the left side (teacher is

backwards so that students are correct)]. The place values are tenths and hundredths [hand

bounces out to indicate the tenths and hundredths spaces]. Students and teacher will repeat this

sentence with the teacher talking and gesturing, students only gesturing three times and then with

everyone speaking and gesturing three times. "Tell your neighbor about the place values of

decimal numbers." The students repeat this until the teacher tells them to stop.

Step 3: Learner Participation

Students will use decimal place value mat to practice putting numbers into spots the teacher calls

out. The teacher will call out ten sets of numbers that students must use their number cards to put

on the spots based on place values. The lesson will be on a podcast file that students will be

allowed to listen to if needed, at any time during this phase and at home via the file link sent out to parents.

Step 4: Assessment

Students will write the place value names of decimals on a worksheet.

Step 5: Follow-Through Activities

Students will continue practicing this skill throughout the unit and will be expected to perform this skill on the Florida Standards Assessment (FSA). The students will practice this again in combination with converting fractions to decimal form lessons and on the end of unit assessment.

Lesson Plan 3

Title: Converting Decimals to Fractions

Lesson Overview: Students will learn how to convert decimal numbers into base ten fractions.

Resources or Materials Needed

- ☐ Cardstock
- ☐ Scissors
- ☐ Pencils
- ☐ Washable markers
- ☐ Dry erase markers
- ☐ White boards (students and large classroom one for the teacher)
- ☐ Worksheet (converting decimals)
- ☐ Paper strip to wear around head
- ☐ Number cards (laminated)
- ☐ Tape for number cards

☐   Computer with speaker and recording ability

☐   Headphones

Lesson Objectives: Given a worksheet, students will convert five out of five decimals to their equivalent fraction forms.

Time: 45 minutes

Step 1: Pre-Instructional Activities

The teacher will write three decimal numbers on the board, underlining one number in each set, and ask students what the place value of underlined numbers are on the board.

Step 2: Content Presentation

Students will be given a piece of cardstock to fold in half, lengthwise (vertically). The teacher will fold her paper first and demonstrate a cut down the top of one side. The class will make three cuts to make four flaps they will be able to write on. The teacher will use the marker board to demonstrate what is to be written on each tab, as the students take down the notes. The front of the tabs will have one number except for the second tab which will have a decimal point. The numbers will be as follows: 4, 3, 2. The teacher will model on the marker board and using her paper copy how to divide the inside of the folded paper to line up with each tab when the tab is down on the other half of the paper. On these newly divided sections the teacher will say as she writes that the numbers under the tabs are going to be fractions with a base value of tens. The fractions we are writing are worth the same as the decimal value on the front tab. The teacher will have the students write 1/1 on the first tab for the place value of 1. The next sections will have the following fractions: 1/10 and 1/100. The teacher will have the students recite the place values of the decimal number they wrote on the top tabs as well as say the decimal as a whole.

When the students have done this one time, the teacher will repeat the decimal place value and

show the students the denominator under that tab they are saying matches as they are speaking.

Step 3: Learner Participation

Students will practice the skill of converting decimals by wearing number signs on their head

(sweatband style) that tell each other what number they represent. There will be one decimal in

each group of seven students. Three students will wear a whole number and the other three will

have fractions of 1/1, 1/10, and 1/100. The teacher will ask students with the decimal and the

whole numbers to create a decimal number with a place value no greater than to the hundredths.

Students will have ten seconds to perform this step. After the time is up, the other three students

will be instructed to stand facing their whole number value spot. If all groups are correct the

teacher will instruct the students to work as a team to figure out the fraction form of their

decimal. As students have not been directly instructed how to do this step, the teacher will give

time for groups to think about place value concepts and what this means for decimals converting

into fractions. After ten minutes (or longer if needed), the teacher will call the class back and ask

the students what they think their numbers would be as fractions and to explain their reasoning.

The teacher will then go on to explain that the number in the ones place will represent the whole

number of a mixed fraction and that the numbers in the tenths and hundredths place would

switch to the numerator. The denominator is the highest decimal place: hundredths in this

situation. Students will be given a chance to correct errors if any were made and to write their

answer on their individual white board. The teacher will praise all for trying to solve this and

praise those who were correct. The teacher will ask the students to repeat this process again two

more times. The teacher will then have the whole fraction and the ones place sit down and

students create decimals without the ones place. The same steps will be taken to ensure understanding of creating fractions (not mixed numbers).

Step 4: Assessment

Students will be given a worksheet with 5 decimals on it. The students will need to convert the decimals into their equivalent fraction form. Students will be given until the math block is over to complete this independently.

Step 5: Follow-Through Activities

Students will continue practicing this skill throughout the unit and will be expected to perform this skill on the Florida Standards Assessment (FSA). The students will give the answer to the question "how do we convert decimals to fractions" on audacity as their exit ticket.

Lesson Plan 4

Title: Missing Numerators

Lesson Overview: Students will learn how to convert decimals into base ten fractions.

Resources or Materials Needed

☐ Construction paper, computer paper, or colored paper

☐ Scissors

☐ Glue

☐ Student notebook

☐ Worksheet (missing numerators)

☐ Pencils

☐ Computer with speaker and recording ability

☐ Headphones

Lesson Objectives: Given six sets of fractions with known denominators and an equal decimal, students will fill in the missing numerators four out of six times.

Time: 45 minutes

Step 1: Pre-Instructional Activities

Students will answer the daily warm-up questions orally. There will be three questions to review identifying decimal place values. The teacher will go over answers immediately.

Step 2: Content Presentation

The teacher will ask the students to mirror her gestures as she lectures the students on how to convert decimal numbers into equivalent base ten fractions. The teacher will say, "Today we will learn how to convert decimals into fractions. Mirror my gestures, please. The place values of a decimal [hold one hand out as a fist to represent the decimal, move other hand out in increments to show place value] will become the denominator [change hands into two fists on top of each other, shaking the bottom fist]." The teacher will repeat three times. Then she will repeat three more times with the students mirroring the gestures and speaking her words after each sentence. "Tell your neighbor what you just learned." Students will turn to their neighbor and repeat the step over and over until called back to the teacher. "Mirror my gestures, please. Whatever the number greater than 0 [hold up fingers, one at a time to indicate different numbers than zero] is becomes the numerator [two fists on top of each other again, shaking the top one]." The class will repeat without words three times then repeat with words and gestures three times and then tell their neighbors about the numerator until called back to the teacher. The teacher will then give examples, orally and on the marker board. "Eyes on the first question, 0.5 becomes 5/10 because the 5 is in the tenths place. The five is the first place value so we need to write 10 as the denominator. Teach your neighbor what I just said!" Students will turn and talk to their neighbor

about the place value and ten. "The five is the number written from the numerator. Tell your

neighbor about the equivalent pair." Students will repeat the information. "Tell your neighbor

how we convert the decimal to a fraction in this other problem, 0.07 to 7/100. Use gestures to do

so." Students do this until they are called back with the teacher listening to discussions and

making corrections as she walks around.

Step 3: Learner Participation

The teacher will then give the students a piece of paper to create a foldable for their notebooks.

Students will make a foldable for converting fractions to decimals and glue it into their math

notebooks to use for the rest of the year, when needed. The paper will be folded into three

panels, with the left and right panels folded inwards to make a jacket; the middle panel is largest.

The students will make one horizontal cut in the middle of the left and right panels to create four

sections on the front. The glue will be placed on the back of the middle panel. The students will

draw dividing lines on the middle panel to match with the four smaller sections so that there are

four sections inside the middle. Students will write on the front four sections the four words (one

on each section): steps, place values, example 1, and example 2. Students will use the inside to

write out the steps for section 1, under the corresponding top flap: "1. Find the place value. This

number is the denominator. 2. Use the whole number greater than 1 as the numerator." Section 2

inside will have the place values of decimals up to hundreds and hundredths. Examples 1 and 2

will write the decimals 0.4 and 0.04. The students will practice converting these two decimal

numbers independently. The teacher will review the answers. The lesson will be on a podcast file

that students will be allowed to listen to if needed, at any time during this phase and at home via

the file link sent out to parents.

Step 4: Assessment

Students will receive six fractions with known denominators and missing numerators that must be filled in based off of the given decimals beside the fraction. The students will work with a partner for this assignment.

Step 5: Follow-Through Activities

Students will be tested on this skill on the Florida Standards Assessment and the end of unit assessment. They will also continue to practice this skill during the next week.

Lesson Plan 5

Title: Converting Decimals to Fractions

Lesson Overview: Students will learn how to convert decimal numbers into base ten fractions.

Resources or Materials Needed

- ☐ Fraction cards (two sets; one set laminated)

- ☐ Decimal cards (laminated; two sets)

- ☐ Card stock envelops (teacher created envelops for card sort)

- ☐ Velcro

- ☐ Scissors

- ☐ Pencils

- ☐ Computer with speaker and recording ability

- ☐ Headphones

Lesson Objectives: Given 15 base ten fraction cards, students will place decimal cards over the corresponding base ten card with 100% accuracy.

Time: 45 minutes

Step 1: Pre-Instructional Activities

The teacher will review the previous lesson with three practice questions for the students to answer about converting decimals and fractions.

Step 2: Content Presentation

Students will review converting decimals to fractions; the teacher will instruct students to discuss the steps for converting decimals to fractions with a neighbor and create practice problems, orally, for their neighbor in a back-and-forth session until the teacher calls them back.

Step 3: Learner Participation

Students will be given a set of cards and envelops to practice with. The students must place each decimal card over the correct fraction cards inside their math notebooks: envelops will be glued into the notebook pages first. Envelops contain the fraction cards inside each one. Students will then place the decimal cards on top of the fraction envelop, using the Velcro on the back of the decimal card and on front of each envelop. The teacher will go over this sorting activity, with students making corrections before gluing the cards into their notebooks. Students will need to ensure accuracy is at 100% in their notebooks to aid in future study of unit material at home.

Step 4: Assessment

Students will be given 15 fraction cards and decimal cards. Students will be told to place the decimals on top of the correct fraction card to make an equivalent pair. The teacher will make notes of who needs to review the skill on a paper chart for each student. This assessment is individually conducted at the teachers table. Students will be called over one at a time to do this assessment while others are completing the sorting activity.

Step 5: Follow-Through Activities

Students will explain how to convert fractions to decimals by using audacity. Students will speak into the computer speaker to tell the teacher how to convert fractions into decimals as their exit ticket activity.

Lesson Plan 6

Title: Converting Base Ten Fractions to Decimals

Lesson Overview: Students will learn how to convert fractions into decimal numbers.

Resources or Materials Needed

- ☐ Decimal cards (laminated)

- ☐ Marker boards

- ☐ Dry erase markers

- ☐ Computer with speaker and recording ability

- ☐ Headphones

Lesson Objectives: Students will be able to convert fractions into decimals by answering at least two problems, posed by classmates, with 100% accuracy on the given website.

Time: 45 minutes

Step 1: Pre-Instructional Activities

Students will answer the daily warm-up questions orally. There will be three questions to review whole number place values as they will need that skill to convert fractions into decimals. The teacher will go over answers immediately.

Step 2: Content Presentation

The teacher will ask the students to mirror her gestures as she lectures the students on how to convert base ten fractions into equivalent decimal numbers. The teacher will say, "The first step

is to find out the place value. Mirror my gestures, please. The denominator [place two palms, one on top of the other, shake the bottom one] will become the place value [left fist stays, right fist becomes a flat palm that slides out from the left fist and moves to the right to indicate place values]." The teacher will repeat three times. Then she will repeat three more times with the students mirroring the gestures and speaking her words after each sentence. "Tell your neighbor what you just learned." Students will turn to their neighbor and repeat the step over and over until called back to the teacher. "Mirror my gestures, please. The numerator [two fists on top of each other again, shaking the top one] will become the number written for the place value spaces [move the top fist off the fraction gesture towards the place value area, this time keeping it as a fist and bouncing it along the place value area – start at the decimal fist and move to the right to show numerator goes there as a number now]." The class will repeat without words three times then repeat with words and gestures three times and then tell their neighbors about the numerator until called back to the teacher.

Step 3: Learner Participation

Students will then practice converting fractions into decimal numbers. The teacher will tape decimal number cards around the walls of the classroom. Students will be told a fraction that they must then convert and walk to the correct taped card. The game will continue until the teacher sees few students making errors. The lesson will be on a podcast file that students will be allowed to listen to if needed, at any time during this phase and at home via the file link sent out to parents.

Step 4: Assessment

Students will then work on the computer to answer the question posed by the teacher on Mindmeister.com. The students will answer the question "explain how to convert fractions into

decimals and ask someone to convert a fraction into a decimal (you make up the question)" by

making a bubble stem from the question bubble and typing out their answer. Students must

answer at least two other classmates before the end of the week.

Step 5: Follow-Through Activities

Students will be tested on this skill on the Florida Standards Assessment and the end of unit

assessment. They will also continue to practice this skill during the next few days.

Lesson Plan 7

Title: Converting Base Ten Fractions to Decimals

Lesson Overview: Students will learn how to convert fractions into decimal numbers.

Resources or Materials Needed

 □ Place Value Mats

 □ Number cut outs (laminated)

 □ Worksheet (fractions to decimals)

 □ Pencils

 □ Computer with speaker and recording ability

 □ Headphones

Lesson Objectives: Students will convert base ten fractions to their decimal equivalents, with

100% accuracy on a given worksheet with ten fractions.

Time: 45 minutes

Step 1: Pre-Instructional Activities

Students will answer the daily warm-up questions orally. There will be three questions to review

whole number place values as they need to master this concept for base ten fraction conversions.

The teacher will go over answers immediately.

Step 2: Content Presentation

The teacher will ask the students to review by mirroring her gestures as she reminds the students

on how to convert base ten fractions into equivalent decimal numbers. The teacher will say, "The

first step is to find out the place value. Mirror my gestures, please. The denominator [place two

palms, one on top of the other, shake the bottom one] will become the place value [left fist stays,

right fist becomes a flat palm that slides out from the left fist and moves to the right to indicate

place values]." The teacher will repeat three times. Then she will repeat three more times with

the students mirroring the gestures and speaking her words after each sentence. "Tell your

neighbor what you just learned." Students will turn to their neighbor and repeat the step over and

over until called back to the teacher. "Mirror my gestures, please. The numerator [two fists on

top of each other again, shaking the top one] will become the number written for the place value

spaces [move the top fist off the fraction gesture towards the place value area, this time keeping

it as a fist and bouncing it along the place value area – start at the decimal fist and move to the

right to show numerator goes there as a number now]." The class will repeat without words three

times then repeat with words and gestures three times and then tell their neighbors about the

numerator until called back to the teacher.

Step 3: Learner Participation

Students will then practice converting fractions into decimal numbers using the laminated place

value mats that have blank squares under place value names. There is a decimal point on these

mats already. Students will be told fraction numbers orally from the teacher and will be given

time to work out the conversion, putting number squares on the blank squares to answer. The

teacher will observe as the students work, increasing practice if needed. The lesson will be on a

podcast file that students will be allowed to listen to if needed, at any time during this phase and

at home via the file link sent out to parents (file is for lesson 6 also).

Step 4: Assessment

Students will then work independently on the worksheet, converting fractions into decimals.

Step 5: Follow-Through Activities

Students will be tested on this skill on the Florida Standards Assessment and the end of unit

assessment. They will also continue to practice this skill during the next few days.

Lesson Plan 8

Title: Converting Between Fractions and Decimals

Lesson Overview: Students will practice how to create equivalent decimal and fraction pairs.

Resources or Materials Needed

- ☐ Poster board

- ☐ Markers

- ☐ Fraction strips

- ☐ Decimal grids

- ☐ Pencils

- ☐ Computer with speaker and recording ability

- ☐ Headphones

Time: 45 minutes

Objective: Students will be able to create a poster showing three sets of equivalent decimal and fraction pairs with 100% accuracy when given fraction strips and decimal grids.

Step 1: Pre-Instructional Activities

Students will answer the daily warm-up questions orally. There will be three questions to review converting fractions to decimals as the activity today will be using this skill. The teacher will go over answers immediately.

Step 2: Content Presentation

The teacher will review yesterday's lesson with the students by asking the students to mirror her gestures as she lectures the students on how to convert base ten fractions into equivalent decimal numbers. The teacher will say, "Mirror my gestures, please. The denominator [place two palms, one on top of the other, shake the bottom one] is the place value [left fist stays, right fist becomes a flat palm that slides out from the left fist and moves to the right to indicate place values]. The numerator [two fists on top of each other again, shaking the top one] is the number filled in for the place value spaces [move the top fist off the fraction gesture towards the place value area, this time keeping it as a fist and bouncing it along the place value area – start at the decimal fist and move to the right to show numerator goes there as a number now]." The class will repeat without words three times then repeat with words and gestures three times and then tell their neighbors about the numerator until called back to the teacher. "Mirrors on! [Teacher makes a fraction gesture: two fists on top of each other] The denominator is how many place value spots are filled [denominator hand flattens out for place value to be filled]]. The numerator is the number written, filling in the spots needed. [Numerator fist goes on top of place value palm]" Students repeat with a neighbor this set of gestures and words until the teacher calls them back.

"When converting fractions to decimals, we are making equivalent pairs of numbers. 3/10 is the equivalent of 0.3, just as 0.3 is the equivalent of 3/10."

Step 3: Learner Participation

Students will then create three practice problems for their neighbor to solve, orally. Students will ask each other to convert fractions to decimals, back and forth until the teacher calls them back to her. The lesson will be on a podcast file that students will be allowed to listen to if needed, at any time during this phase and at home via the file link sent out to parents.

Step 4: Assessment

Students will then work with a group of 3 to create a poster. The poster will feature three fraction and decimal pairs that the groups choose to show that have been converted between fraction to decimal and decimal to fraction. Students will then explain why the decimals and fraction pairs are equivalent to each other, using models and words to demonstrate their understanding.

Step 5: Follow-Through Activities

Students will ask the teacher any questions they have still about converting by using audacity. Students will speak into the computer speaker to tell the teacher what they need the teacher to cover before they take their exam as their exit ticket activity.

Lesson Plan 9

Title: Converting Fractions and Decimals

Lesson Overview: Students will convert fractions to decimals and convert decimals to fractions.

Resources or Materials Needed

☐   Dry Erase Markers

☐   Marker boards

☐   Test

☐   Pencils

Lesson Objectives: Given the end of unit assessment, students will match 8 out of 10 decimal numbers to their corresponding fraction form by drawing a line from a decimal number to the matching fraction form.

Time: 45 minutes

Step 1: Pre-Instructional Activities

Students will silently review their notes and rules independently before the teacher begins the short review before the test.

Step 2: Content Presentation

The teacher will go over student's questions and comments they recorded for the teacher yesterday.

Step 3: Learner Participation

Students will be given five minutes to review with their neighbors what the rules are and give their neighbors questions on the individual marker boards to practice before the test.

Step 4: Assessment

Students will take the end of unit test, independently.

Step 5: Follow-Through Activities

Students will be tested on this skill on the Florida Standards Assessment and the end of unit assessment. They will also continue to practice this skill with center activities and review sessions prior to the FSA and until the end of fourth grade.

Assessments and Handouts

Name: _____   **Unit 5 Bellwork- Fractions and Decimals**

Monday	5̲53	2,75̲4	885̲
Tuesday	92̲	575	0.50
Wednesday	5̲.43	0.08̲	0.86̲
Thursday	0.64̲	0.3̲9	0.02̲
Friday	0.82 = ———	0.17 = ———	0.05 = ———
Monday	937̲	19̲1	33̲
Tuesday	1̲,749	2̲18	292̲
Wednesday	$\dfrac{21}{100}$ = ____.____	$\dfrac{8}{100}$ = ____.____	$\dfrac{7}{10}$ = ___.____

Decimal Teacher Call out Ideas (days 1, 2, and 3)

4.53

0.98

0.01

0.72

0.02

0.57

2.33

1.09

0.04

0.60

0.2

2.22

15.41

0.90

0.01

0.18

4.7

0.39

12.21

Name: _____ **Date:** _____

Decimal Place Value Practice

Name the place value for each of the underline numbers below.

1. <u>7</u>.05   _____

2. 3.1<u>3</u>   _____

3. 0.<u>7</u>7   _____

4. 0.0<u>9</u>   _____

5. 0.<u>1</u>0   _____

6. <u>7</u>.83   _____

7. 0.<u>5</u>0   _____

8. 0.0<u>5</u>   _____

9. 0.<u>3</u>2   _____

10. <u>1</u>0.02   _____

Day 2 Worksheet

Name: _____   **Date:** _____

Name the place value for each of the underline numbers below.

    1. 0.9<u>9</u>   _____

    2. 1.5<u>2</u>   _____

    3. 0.<u>7</u>5   _____

    4. 0.0<u>1</u>   _____

    5. 0.<u>7</u>0   _____

Tens	Ones	Decimal point	Tenths	hundredths
		●		

0	**1**
2	**3**
4	**5**
6	**7**
8	**9**
.	$\dfrac{1}{1}$
$\dfrac{1}{10}$	$\dfrac{1}{100}$

Name: _____   **Date:** _____

Converting Decimals

Convert decimals into their equivalent fraction form.

1. 0.65   _____

2. 0.30   _____

3. 0.25   _____

4. 0.07   _____

5. 0.41   _____

Name: _____ **Date:** _____

Missing Numerators

Use the decimal numbers to solve for the fraction that is equal to it. Fill in the missing numerators in the correct spaces.

$0.05 = \dfrac{}{100}$	$0.43 = \dfrac{}{100}$
$0.30 = \dfrac{}{10}$	$0.21 = \dfrac{}{100}$
$0.65 = \dfrac{}{100}$	$0.9 = \dfrac{}{10}$

Decimal Card Set 1 (Day 5)

0.53	0.28	0.31
0.09	0.26	0.44
0.2	0.11	0.07

Fraction Card Set 1

$\frac{53}{100}$	$\frac{28}{100}$	$\frac{31}{100}$
$\frac{9}{100}$	$\frac{26}{100}$	$\frac{44}{100}$
$\frac{2}{10}$	$\frac{11}{100}$	$\frac{7}{100}$

Decimal Card Set 2 (Day 5)

0.43	0.17	0.05
0.3	0.7	0.04
0.28	0.49	0.88
0.08	0.40	0.24
0.03	0.48	0.37

Fraction Card Set 2

$\dfrac{43}{100}$	$\dfrac{17}{100}$	$\dfrac{5}{10}$
$\dfrac{3}{10}$	$\dfrac{7}{10}$	$\dfrac{4}{100}$
$\dfrac{28}{100}$	$\dfrac{49}{100}$	$\dfrac{88}{100}$
$\dfrac{8}{100}$	$\dfrac{4}{10}$	$\dfrac{24}{100}$
$\dfrac{3}{100}$	$\dfrac{48}{100}$	$\dfrac{37}{100}$

Day 6 Decimal Cards

0.9	0.13	0.11	0.70
0.07	0.09	0.21	0.64

Call out for Day 6 Decimal Cards

9/10	7/10	21/100
13/100	7/100	64/100
11/100	9/100	

Day 7 Call outs

22/100	9/10	2/100
1/100	21/100	11/100
12/100	5/10	4/10
6/100	67/100	4/100
39/100	92/100	32/100

Name: _____   **Date:** _____

Convert the following fractions into decimal numbers.

$\dfrac{12}{100}$	$\dfrac{2}{100}$
$\dfrac{5}{100}$	$\dfrac{51}{100}$
$\dfrac{14}{100}$	$\dfrac{47}{100}$
$\dfrac{8}{10}$	$\dfrac{3}{10}$
$\dfrac{49}{100}$	$\dfrac{11}{100}$

Poster Board Rubric

Objective	3	2	1	0
Fraction to decimal numbers are shown equivalent	3 pairs correctly calculated	2 pairs are converted correctly	1 pair is correctly calculated	No correct calculations
Decimal numbers are equivalent to their fraction pairs	3 pairs correctly calculated	2 pairs are converted correctly	1 pair is correctly converted	No correct conversions
Explain why the pairs are equivalent.	Written in a paragraph of at least 3 sentences; logical explanation	May be logical; less than 3 sentences.	Only 1-2 sentences; may or may not be logical	Not logical; not in paragraph form.
Uses models to demonstrate conversions.	Models are accurate and in color.	Models are accurate but are messy and/or not colored	Only some of the models are neat and accurate.	One or less of the models are accurate and neat.

Name: _____   **Date:** _____

Unit Assessment

Match each decimal number with its correct fraction pair. Draw a line to match the pairs.

48/100

1. 0.04   9/10

2. 0.39   28/100

3. 0.40   28/10

4. 0.28   4/100

5. 0.48   2/10

6. 0.09   2/100

7. 0.29   39/100

8. 0.9   9/100

9. 0.02   4/10

10. 0.92   92/100

9/100

29/100