Pennsylvania Adult Education Resources

Lesson Overview

Topic	Lesson Information
Lesson Title:	Fractions - Subtraction
Lesson Author:	Deborah Tkach
Date Created:	March 21, 2022
Lesson Timeframe:	45 minutes
Content Area(s):	Math
General Topics/Skills Covered:	Subtraction of fractions
NRS Level(s):	Level 3
Prerequisite Skills:	Students must be able to simplify fractions, determine equivalent fractions, and convert improper fractions and mixed numbers.

Standards and Skills Addressed

Topic	Your Standards and Skills Addressed
College and Career Readiness Standards (CCRS):	**College and Career Readiness Standards (CCRS):** Standards for review of prerequisite skills: Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. (3.NF.3b) Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram. (3.NF.3c) Standards for lesson: Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. (4.NF.3c) Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. (4.NF.3d) Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.) (5.NF.1) Solve word problems involving addition and subtraction of fractions referring to

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	the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2. (5.NF.2)
English Language Proficiency Standards (ELPS (if applicable):	N/A
Target Grammar/Language Forms (for ESL):	N/A
Standards for Mathematical Practice:	Reason abstractly and quantitatively. Attend to precision. Look for and express regularity in repeated reasoning.
Foundation Skills Framework (Workforce Skills):	Applies mathematical operations, concepts, and reasoning.
Digital Literacy Skills (also see checklist below):	Skills practiced: - Navigating within a particular website - Clicking on links to access documents and videos - Answering multiple-choice questions digitally

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Digital Literacy Skills Checklist:	☐ Are students taught how to find--and evaluate the validity of--online sources? Are they given an opportunity to practice doing so with different topics and for different tasks? ☐ Are sufficient instructions given to students around the use of digital tools and is sufficient time provided to practice the use of tools? ☐ Do students use digital tools to create and present products (e.g., papers, presentations, graphics)? ☐ Are students provided with an opportunity to select and use appropriate technology to solve problems in class?

Objectives, Materials, Vocabulary, and Culturally Responsive Teaching

Topic	Your Objectives, Materials, Vocabulary, and Culturally Responsive Teaching
Lesson Objective(s):	By the end of the session, students should be able to earn at least an 80 percent on the assessment which will measure their ability to subtract fractions, whole numbers, and mixed numbers using both like and unlike denominators.
Lesson Objective Tips:	• Check it with SMART. (Is it Specific, Measurable, Achievable, Relevant, and Timely?)

Texts, Materials, Resources (also see checklist below):	Students can use the Lesson document to learn the material and do short practice exercises. At the end of the slides, students are asked if they want more practice or if they are ready to take the assessment. They are given the opportunity to do more practice using online worksheets that they can submit to the instructor. If they are ready to take the assessment, students can ask their instructor for the assessment link. **Lesson:** **https://docs.google.com/presentation/d/1WkQLmH4l4CKOiJJDA-cr5qmPtEUq2rIu/edit?usp=sharing&ouid=108694999666153386286&rtpof=true&sd=true** **Independent Practice:** ● Student worksheets: Like denominators - https://docs.google.com/document/d/11gfSc1k6SDeq9x10CSt-20nI725wB7tYZCiayW7sJQw/edit?usp=sharing Unlike denominators - https://docs.google.com/document/d/1wTqQKgrJHYIUXR0I9qd2ykYMq_jiNlAz10n-_Fiu9W4/edit?usp=sharing Mixed numbers - https://docs.google.com/document/d/1HjA9f1wcTmv7quTBJBF6vMtKN4f3wtDAwIFNW2yoqLM/edit?usp=sharing ● Teacher worksheets (with answers): Like denominators – https://docs.google.com/document/d/1RB1xVk3lNZyxHU9egfcDQ1_NfAMFg5dMSDbZxPwrrAw/edit?usp=sharing

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	Unlike denominators - https://docs.google.com/document/d/1Ew7BCSKh8K5DvPxr7hEkA8241henMCyroKY4_WRF_yo/edit?usp=sharing Mixed numbers - https://docs.google.com/document/d/1VB7kSjph8qCbjEMmEdmSGaHYAvGwpIjWI4wJhAOwVVM/edit?usp=sharing **Assessment:** https://docs.google.com/forms/d/1ZIxCEtasYqLULQpLqxZu1qYf5DZ6F4GRZI3xHF1ur7c/edit?usp=sharing
Texts, Materials, Resources Checklist:	☐ Are the recommended texts relevant to adult learners, culturally responsive, and useful for building knowledge and achieving the objectives?
Lesson Vocabulary:	Click or tap here to enter text.

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Culturally Responsive Teaching Notes (also see checklist below):	Click or tap here to enter text.
Culturally Responsive Teaching Checklist:	☐ Is it evident that students will connect content to their own lives and to what they already know? ☐ Do the student resources regularly include authors, images, and ideas from a range of racial, cultural, linguistic, gender, and (dis)ability representations and backgrounds, especially those of our students? ☐ Do cultural representations and varied perspectives seem to be fair and accurate? Are stereotypes avoided?

Instructional Activities

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Lesson Introduction:	Students will review procedures on conversion of improper fractions and mixed numbers, factors of numbers, and simplification of fractions.

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Lesson Introduction Tips:	• Explain how the lesson objectives will be shared with learners. • Make connections to learners' goals and prior and future lessons.
Lesson Body, Direct Instruction:	Students will read through a series of slides which explain fraction equivalency and different strategies to perform mathematical operations of fractions and whole and mixed numbers.
Lesson Body, Guided Practice:	N/A
Lesson Body, Independent Practice:	Students will be given the opportunity to complete practice questions as they proceed through the slides to ensure that they understand the material. They can also complete online worksheets which can be submitted to their instructors for additional practice.
Lesson Body Tips:	• Provide enough detail that another instructor could teach this lesson based on the information in this lesson plan. • Include how the students will be grouped, approximate timeframes for each activity, and how technology will be integrated. • Describe where in the lesson sequence, and how, the instructor will model the target skills and/or tasks for the learners.
Differentiation (also see checklist below):	Click or tap here to enter text.

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Differentiation Checklist:	☐ Are teachers cued to adapt instruction for their specific learners? ☐ Are there adequate supports to help teachers differentiate instruction to meet the needs of individual learners, including English learners and those with learning disabilities? (e.g., texts at different levels, broad topics or compelling tasks that allow teacher/student flexibility) ☐ What kinds of choices are students able to make within the lesson plan (e.g., text selection, project topics or products)?
Assessment:	Students will complete an assessment with multiple-choice questions to determine if they have learned the material that was presented. They will be successful if they earn at least an 80 percent on the assessment.
Assessment Tips:	• Describe the ongoing assessments that will be used to check learners' progress toward the lesson objectives. • Describe the cumulative assessments that will measure the extent to which learners met the lesson objectives.
Lesson Conclusion:	Instructors should review lesson objectives with students and give them an opportunity to discuss their comfort level with the material. If students need additional assistance, instructors can then offer remediation by using worksheets found at https://www.math-drills.com/
Lesson Conclusion Tips:	• Review lesson objectives. • Provide an opportunity for student reflection. • Connect to prior and future learning.

Topic	Lesson Information
Lesson Extension, Homework:	N/A
Lesson Extension, Additional Enrichment/Practice Opportunities:	N/A
Key Shifts:	• Check to ensure that your lesson addresses the Key Shifts in the CCRS.
ELA Key Shifts (check all that apply):	☐ Text Complexity ☐ Evidence ☐ Building Knowledge
Math Key Shifts (check all that apply):	☒ Focus ☒ Coherence ☒ Rigor

Instructor Reflection Before the Lesson

Instructor Reflection Questions (to be completed before teaching the lesson):

- Are there opportunities to position students as experts on topics?
- What implicit bias might be reflected in the lesson or instructional design of the lesson?
- Were sufficient instructions on the use of digital tools provided and do students have an opportunity to practice?
- Were students provided with the opportunity to make choices regarding the lesson topic, project, etc.?

Instructor Reflection After the Lesson

Instructor Reflection Questions (to be completed after teaching the lesson):

- What went well in the lesson?
- What did not go well in the lesson?
- Did the learners meet the lesson objectives? If not, why?
- What changes should be made for next time the lesson is taught?