|  |  |  |
| --- | --- | --- |
| **Lesson Plan Template (Case Study C)** | | |
| **PLANNING** | | |
| **Unit Title** | A Recipe For Success: Fractions | |
| **Subject Area** | Mathematics | |
| **Lesson Title** | Exploring Fractions | |
| **Length of Lesson** | 55 minutes per day for 5 days | |
| **Audience Description** | Number of students: 24  ●  11% of your student of population is known to have a disability.  ●  Student variability (includes but moves beyond disability):   ○  The most common concern is reading and writing at least one student reads 3-4 grade levels below; some other students read 1-2 grade levels below. Writing is very difficult for one student.    ○  One student has been identified with behavioral disorders. He really doesn’t like class because he had the same subject last year and hated the teacher (the teacher is not known for being good). If off-task, he can become behaviorally difficult and quickly oppositional.    ○  Another student who is not labeled but socially aloof, distant, and doesn’t fit in. Since the start of the school year, started rebelling at home, dress in all black (somewhat goth), plays a lot of video games. Generally is a B C student but has essentially refused to turn in anything for the last month. Does not like being called out in front of class. Has a history of being picked on in class.    ○  One student in the class have been identified with Aspergers. He likes science and math and is at or surpasses grade level in certain areas but behind in others. Learns a lot through TV, watches a ton of science-based TV shows. Really doesn’t care for other academic areas but has agree to “tolerate” them unless he gets picked on. Has hard time socializing with others, doesn’t relate well to the human condition. Can have difficult behavior if he is teased or becomes frustrated.    ○  One student has been labeled as gifted, but others are performing at or above grade level; The student who is gifted has a tendency to get bored easily. This leads to small off-task behavioral concerns, can set-off others.    ○  One has missed the last week and returned the day of your lesson.    ○  Two students are not in class.   ●  Rural student population that is growing into suburb with a range of lower to upper middle class families; some  parents are well-educated. Last year your district purchased a bunch of iPads, laptops, and other technology for your team. | |
| **Objectives** | Students will be able to ...  -  recognize the idea that the whole is made of several parts.  -  recognize fractions in everyday life.  -  interpret a chart to create fractions.  -  express which fractions are equivalent to each other.  -  explain why the fractions are equivalent.  -  compare decimal values to find equivalences.  - compare fractions by determining if the fractions are ‘less than,’ ‘greater than,’ or ‘equal to.’  - explain why a fraction is larger/smaller than another fraction.  - manipulate fraction bars to add and subtract fractions with common and unlike denominators.  - add and subtract fractions with common and unlike denominators without using manipulatives. | |
| **Standards** | NCTM Standards:   Topic🡪Number and Operations  Instructional Program Descriptor🡪Understand numbers, ways of representing numbers, relationships among numbers, and number systems.   Instructional Program Descriptor🡪Understand meanings of operations and how they relate to one another.  Common Core Standards:  **Extend understanding of fraction equivalence and ordering.**  [CCSS.MATH.CONTENT.4.NF.A.1](http://www.corestandards.org/Math/Content/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. Use this principle to recognize and generate equivalent fractions.  [CCSS.MATH.CONTENT.4.NF.A.2](http://www.corestandards.org/Math/Content/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. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.  **Build fractions from unit fractions.**  [CCSS.MATH.CONTENT.4.NF.B.3](http://www.corestandards.org/Math/Content/4/NF/B/3/)  Understand a fraction a/b with a > 1 as a sum of fractions 1/b.  [CCSS.MATH.CONTENT.4.NF.B.3.A](http://www.corestandards.org/Math/Content/4/NF/B/3/a/)  Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.  [CCSS.MATH.CONTENT.4.NF.B.3.B](http://www.corestandards.org/Math/Content/4/NF/B/3/b/)  Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.  [CCSS.MATH.CONTENT.4.NF.B.3.C](http://www.corestandards.org/Math/Content/4/NF/B/3/c/)  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.  [CCSS.MATH.CONTENT.4.NF.B.3.D](http://www.corestandards.org/Math/Content/4/NF/B/3/d/)  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. | |
| **Assessment (formative and/or summative)** | Students will utilize a variety of methods for assessment, including teacher observation through opportunities to respond (talk with partners, group call out, volunteers, individual call out, etc.), permanent work products each day (individually and/or as a group), and through demonstration and dialogue. Assessment will generally be submission of an Exit Ticket at the end of the day, which works into the positive behavioral strategies being used for behavioral supports. | |
| **Resources (texts, technology, materials, etc.)** | Computer/Laptop with text to speech technology, speakers, internet access for videos, paper worksheets included on the webpage under “Materials”, Math journals (iPad accessible for those in need), white board, whiteboard Fraction Bars for visual, Skittles worksheet, “I Have, Who Has?” Cards, Plastic spoons, Fraction cards, Note cards/Index cards, Teacher calculator attachment for whiteboard, Rainbow fraction circles, GCF Worksheet, Notebook paper, Pencils/Markers (or other writing utensils), Comparing Fractions Worksheet, iPads for calculators/notes/timers/fraction cards, and journals, Calculators (TI-73 Graphing if available), Adding/Subtracting Fractions Worksheet, Fraction bars for support when needed.  \*Note that all worksheets are downloaded onto the iPads for those who need the text read, for those who have difficulty writing, and for technological engagement for the entire class | |
| **Incorporation of other subject areas** | Halloween party (cooking, measuring, finances/money figuring) lesson may be utilized to enhance understanding of real life fractions and changes between the measurements depending on how many students will attend and how much is needed for determined amount of party treats. This pulls in areas of fractions, problem solving, team building/work, and authentic application of lessons learned. | |
| LESSON DELIVERY | | |
| **Introduction (anticipatory set, thinking device, advance organizer, lesson “hook”)  OPENING ACTIVITY** | # of minutes: 5-10  Opening activities are included for each day as part of the webpage. For all days, the major goal is to build connections to background knowledge, review the previous days material, and to correct any misconceptions still held by students regarding the material at hand. | |
| **Description** | **Rationale** |
| UDL Engagement: Recruitment of Interest – Optimize Choice/Autonomy and Optimize Relevance, Value, and Authenticity | Students will see exactly how they’ll be graded (participation, worksheets, and exit tickets), and a unit review following the class dialogue will let them know they’re working up toward baking treats for the Halloween party, both increasing motivation and leading up to an authentic, real-world experience. |
| **Lesson activities (content, methods, strategies, procedures, formative assessment)  MAIN ACTIVITY** | # of minutes: 45-50   1. For each day, the content will consist of an opening activity to increase engagement and build background knowledge. Students will have the opportunity to contribute to such events as math journaling, daily class discussion (peers, groups, and whole class), a class project, and a connection activity (Halloween party). Students should be given every opportunity to respond during these times however they may, whether by calling out verbally, making notes in journals/iPads and talking with a peers. 2. Each main activity Monday through Thursday consists of a group or whole class assignment that targets a specific skill. The teacher must intermittently pause during the activities to allow students to build connections to their math journals, and in preparation for the assessment. Students working alone should be taught to review math journals before participating in activities the video so they can use notes to guide them. 3. Additionally, each activity requires a slightly different setup. Certain days will require that students have pencil or preferred writing utensil. Other days will require scissors and glue (to add new information to math journals). Most days will require group participation. All days will require various prompts for this level of student, and keen attention to the different needs of the learners in regard to their ability levels and which level they may attain within the access points (though each student will have every opportunity to achieve “Independent” level.) 4. Students have some elements of choice in their assessments each day. Students may choose both which activities to perform, which order to complete them, and then their preferred method for sharing the results (verbal, audio microphone, etc.) as explained on the webpage. 5. Finally on day 5, students will utilize the final exit ticket, enhanced by the week’s activities, in order to complete the assignment and prepare for the connection activity (Halloween party). Participation should be prompted as needed, and students may need individual accommodations for their unique needs in writing, engagement, and speaking. 6. Generally, the progression of the week works in two ways, to build knowledge related to manipulation of fractions each day, increasingly moving into real-world examples, and building knowledge related to forms and computations of fractions. 7. Daily exit ticket submission ties into the positive behavioral management plan for the class and individual students. Feedback will be provided for each ticket and given back the following day. Follow up with individuals will be conducted as needed. | |
| **Description:** | **Rationale:** |
| UDL representation  Provide Options for Sustaining Effort and Persistence: Vary Demands and resources to optimize challenge; foster collaboration  Provide options for Recruitment of interest: Optimize individual choice/autonomy and Optimize relevance, value, and authenticity | Students can choose a variety of assessment options, and within the lessons they can choose to view the material with captions or not, and individually or as a group  Students are working toward a common goal: to be able to compute supplies needed for Halloween party (they’re utilizing the group work/discussions and math journals to share their work with one another.) |
| UDL engagement:  Options for Comprehension: Activate Background knowledge; heighten critical features; maximize transfer and generalization.  Options for Perception: Offer was of customizing the display of information; Alternatives for Auditory/Visual information | Students will utilize various background knowledge activation methods, work toward a common goal, and will participate in an authentic learning experience for the upcoming Halloween party.  Students will utilize a variety of delivery methods including hands on learning, group and individual projects, math journals, preferred writing utensils for written work, glue and magazines, etc. The written information is also available online, and the iPads are equipped with text to speech technology. |
| UDL action & expression:  Options for Expression/Communication  Options for Physical Action | Multiple media for communication will be utilized, including spoken word from adults, peer feedback and sharing, audio recording devices, and written work, as well as performance based assessment on an authentic learning experience (Halloween party) and math journals.  Authentic learning project may be used, and many projects/activities can easily be modified to be done individually, with a partner, as a group, or as a class, and the settings allow for either whole group instruction or individual computer-based instruction. |
| **Closure/Support  EXIT TICKET** | # of minutes: 5  Students will have an opportunity to reflect on daily activities with a short exit ticket activity each day. This will enhance learning and provide the opportunity for feedback as needed. Additionally, the final math journal submission for the week, found on the webpage (teacher made) serves as the closure piece for this unit. | |
| UDL principle & description (at least 1):  Opportunity for Sustained Effort and Persistence: Students have the increased opportunity for mastery-oriented feedback after completing all of their exit tickets throughout the unit. This allows the feedback to be specific for each student daily, patterns in learning and comprehension analyzed, and these serve as formative assessments to help guide instruction and future feedback for students.  Opportunities for Recruiting Interest: The final math journal submission allows students to note any questions they have from particular daily activities, activity participation and notes, as well as completion of worksheets (glued/added into journals) to show engagement and understanding.  Options for Expression/Communication: The final math journal submission makes room for answers to be verbalized, drawn, or cut and glued onto the paper. | |