Lesson 1

Lesson Topic: Estimating the Sums and Differences of Mixed Numbers
Grade level: 5th Grade

Length of lesson: 1 day (55 minutes)

Desired Results

State Content Standard(s):
Math:

- **5.NF.2** …Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers

Central Focus:	Essential Question(s):
Students will understand: • Sums and differences of mixed numbers can be estimated by rounding each mixed number to the nearest whole number	• How does estimating the mixed numbers to the nearest whole number aid in understanding the answer to a mixed number addition or subtraction problem?

Student objectives (outcomes):
Students will be able to:
- Estimate the sums and differences of fractions and mixed numbers by rounding to the nearest whole number.

Assessment Evidence

Performance Task(s):	Other Evidence:
• There were none for this lesson.	• Whole Class Discussion: Students will use their EduCreations App on their iPads as the lesson is taught at the front of the board Sticky Note Activity: Each student will be given a sticky note with a fraction on it and will decide if the fraction needs to be rounded up or rounded down based on if it is above or below 1/2. Students will place their sticky note up on the board on the round down/round up section accordingly.

Learning Plan

Learning Activities:
- Students will have already practiced estimating fractions in the previous unit by rounding the fraction to the benchmarks "0" "1/2" or "1". Using a similar approach students will round the mixed number to the nearest whole number for instance "4 ¾" would be rounded to the whole number 5. I will guide students through a PowerPoint on estimating mixed numbers. Students will watch as I demonstrate how to properly estimate a mixed number.

- Students will attempt problems on their own. Students will estimate a given fraction on the board to the nearest whole number. They will work on their EduCreations App as I walk around the room and check their understanding.
- Students will be given a sticky note with a fraction on it. This will somewhat be a review from estimating fractions. However, this time students will be estimating to the nearest whole by using ½ of the fraction as a guide. The ½ benchmark will not be used as it was in the prior unit. Students will decide if their fraction is closer to "0" or if it is closer to "1". They will place their sticky note on the "Round Down" section on the white board or the "Round Up".
- Together as a class we will solve estimating addition and subtraction mixed number problems. Students will have the last five minutes of class to get started on their assignment that is due the following day on estimating mixed numbers. Any individual questions or confusion will be addressed at that time.

Resources and Materials:
- PowerPoint created on Estimating Sums and Differences of Mixed Numbers
- SMARTBoard
- iPad and the EduCreation App
- Sticky Notes
- Student Book (to begin homework)

Required Accommodations/Modifications:
- Students that do not have their iPads can grab one of the personal whiteboards so that they can follow along in class. 4th rotation will be modified for the students in special education by having them work at a slower pace with the guidance of the remedial teacher present during this rotation.

Lesson 2-3

Lesson Topic: <u>Adding Mixed Numbers</u>   **Grade level:** 5th Grade

Length of lesson: 2 days (55 minutes each)

Desired Results
State Content Standard(s): Math: **5.NF.2** …Add fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum.

| **Central Focus:**
Students will understand: How to use models and computational procedures to add mixed numbers. | **Essential Question(s):** How can you combine your past knowledge of adding whole numbers and adding fractions together (by finding common denominators) to add mixed numbers together. |

Student objectives (outcomes):
Students will be able to:
- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.

Assessment Evidence	

Performance Task(s):	**Other Evidence:**
• There were none for this lesson.	• <u>Whole Class Discussion:</u> After watching examples of adding mixed numbers together up on the board; students will solve problems on their EduCreations iPad app. When students finish solving the given problem up on the board they will hold their iPads in the air so that I can walk around the room and check their work. Students that are struggling to get the correct answer will be remediated at that time.

Learning Plan	

Learning Activities:
DAY 1:
- Students will have a brief introduction to adding mixed numbers. I will show an example up on the SMARTBoard of what mixed number addition looks like through solving a real world example by drawing a picture.
- As a class we will go through a brief PowerPoint that explains how to add mixed numbers. (All mixed number problems will result in a regular fraction sum. Improper factions will not be covered until a later lesson in the week). Students will watch as I show them to first find the sum of the fractions. They may need to find common denominators, which they should feel comfortable doing since they have previously learned to find common denominators when adding fractions. After adding the fractions together, students will then follow by adding the whole numbers together. Their answer will be their whole number sum and their fraction sum.
- Students will be reminded to "estimate" the answer in their head by rounding to the nearest whole. They will know that the actual answer they end up getting should be relatively close to their estimate. If their answer is way off from the estimate, they will be encouraged to go back and check their work.
- Students will watch as I solve 3-5 problems on the board. They will then have the opportunity to solve 3-5 problems on their own using their EduCreations App on their iPad. I will walk around the room as they solve these problems to help students that are struggling to understand the content.
- At the end of the rotation students will begin working on their homework assignment due the following day. Any students that are still struggling to understand how to add mixed numbers will be remediated during this time.

DAY TWO:
- Students will check their homework from the night before. This should take no longer than 5 minutes. Allow students to ask for problems to be worked out on the board.
- We will continue working on the PowerPoint from the previous day. Students will be introduced to an addition Mixed number problem where the fraction sum makes an improper fraction.
- Students will know from previously learned content how to turn an improper fraction into a mixed number.
- I will demonstrate how to turn an improper fraction to a mixed number on the board as students follow along.
- Students will see that after turning the improper fraction to a mixed number, the mixed number created from the improper fraction has to be added to the whole numbers in the original mixed number problem.
- Students will watch as I solve more mixed number problems with improper fractions as they follow along on their EduCreations app. Students will then solve problems on the board as I walk around and help those that are struggling.
- Students will be given an adding mixed number worksheet for homework. The worksheet has a mixture of mixed numbers with improper fractions and mixed numbers with out improper fractions.
- Students will spend the last 10 minutes of class working on their homework assignment due the following day.

Resources and Materials:
- PowerPoint created on Adding Mixed Numbers
- SMARTBoard
- iPad and the EduCreation App
- Homework Worksheet on Adding Mixed Numbers
- Homework Key from previous night posted to Blackboard

Required Accommodations/Modifications:
- Students that do not have their iPads can grab one of the personal whiteboards so that they can follow along in class. 4th rotation will be modified for the students in special education by having them work at a slower pace with the guidance of the remedial teacher present during this rotation.
- If students have a hard time understanding adding mixed numbers; they can practice turning the entire mixed number into a improper fraction and then adding from there.

Lesson 4

Lesson Topic: Estimating the Sums and Differences of Mixed Numbers
Grade level: 5th Grade

Length of lesson: 1 day (55 minutes)

Desired Results

State Content Standard(s):
Math:

- **5.NF.2** …Add fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum.

Central Focus:	**Essential Question(s):**
Students will understand: • How to use models and computational procedures to add mixed numbers.	• How can you combine your past knowledge of adding whole numbers and adding fractions together (by finding common denominators) to add mixed numbers together.

Student objectives (outcomes):
Students will be able to:

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Extend their knowledge of adding mixed numbers through an interactive activity

Assessment Evidence	
Performance Task(s): • There were none for this lesson.	**Other Evidence:** • Graded homework from the previous night.

Learning Plan

Learning Activities:

- Students will check their homework assigned from the day before. Any questions on the homework will be addressed and worked through on the SMART Board.
- As a class we will review the content of adding mixed fractions from the day before, anywhere from 5-10 minutes. I will have a PowerPoint slide prepared with review questions. Students will work on their EduCreations on each problem as I walk around the room and help students that are struggling.
- After going over the quick review on adding mixed numbers. Students will play the "Adding Mixed Numbers Card Activity". Students will work with the person sitting across from them. They will be given a small deck of cards and a packet with 10 large blank spaces on it.
- The Ace card will represent the number "1"
 The Jack will represent "11"
 The Queen will represent "12".
 The King will represent "20".
- Partner 1 will pull three cards. The first card they pull will represent their whole number. The second and third card will represent their fraction. Whichever card is smaller will be their numerator and the card that is larger will be their denominator. Both partners will write this mixed number in the first column in their packet
- Partner 2 will then repeat the steps taken by Partner 1. After Partner 2 has drawn 3 cards, both partners will add Partner 2's mixed number to Partner 1's. Both partners will work together to solve the mixed number problem. All answers will be given in simplest form.

• Students will do this 10 times or until the end of the rotation.   • Students will be informed that their assessment on Adding Mixed Numbers will be tomorrow. Students can use past homework to practice if necessary and will be encouraged to do practice problems in the book for homework that night.
Resources and Materials: • PowerPoint created on Estimating Sums and Differences of Mixed Numbers   • SMARTBoard   • iPad and the EduCreation App   • Sticky Notes   • Homework from previous night   • Homework Worksheet Key posted on blackboard.
Required Accommodations/Modifications: • Students that do not have their iPads can grab one of the personal whiteboards so that they can follow along in class. 4th rotation will be modified for the students in special education by having them work at a slower pace with the guidance of the remedial teacher present during this rotation.   • In 4th rotation I will have the "advanced" students partner up with the "lower" students to help guide during the "Mixed Number Card Activity".