

Building Mathematical Thinkers: Mini-Activities

Multiplication Face-Off

Objective: 4th grade Number Sense – Multiplication Estimation & Computation

Theoretical Foundation: This game can be played throughout the year to build multiplication skills and boost student understanding of estimating products. This game also provides practice with subtraction and the use of a calculator. Students should be encouraged to talk to each other about how they made their estimates. Following each time the class plays this game invite students to share the strategies they are using for estimation.

Estimated Time: 20 minutes

Materials: Set of number cards 0-9 for each pair of students OR deck of playing cards with face cards removed (the Aces can represent 1 and the 10s can represent zero), calculator, paper and pencil for each student

Description:

1. There are many ways to alter this game to make it easier or more challenging. See differentiation suggestions for ideas.
2. In pairs students choose 4 cards each from the top of a shuffled deck.
3. Students use estimation to arrange these cards in any combination that forms a 2 digit by 2 digit multiplication sentence.
4. Each student writes down an estimate of the product.
5. Students reveal their estimates. Then they independently solve using whichever method they prefer.
6. Students should check each others' work using a calculator
7. Finally the students should determine the difference between their estimate and the actual product.
8. The player with the smallest difference wins one point.
9. Play continues until one player has 3 points.

Differentiation Suggestions:

- This game can be made easier by drawing 3 cards to create a two digit by one digit problem or drawing 4 cards to create a three digit by one digit problem
- To make the game more challenging each student can draw 5 cards to create a three digit by two digit problem
- Students should be paired with classmates of similar ability so that they can play with a reasonable opportunity to win without getting discouraged

Probing Questions:

- How did you figure out what the best estimate of the product would be?
- Why do you think your estimate is higher/lower than the actual product?
- Do you think your estimate was reasonable? How can you tell?
- What strategy did you use to estimate? How else could you have estimated?
- What strategy did you use to multiply? How else could you have multiplied?

Assessment:

- What strategies are students using to estimate products? How consistently reasonable are these estimates?
- What strategies are students using to multiply large numbers? How consistently accurate are their calculations?