

Ashley Blauwkamp  
Professor Mann  
EDUC 310  
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## **Introducing Three-Digit Addition Direct Lesson Plan – “Think Aloud” Version**

**Content Area:** Mathematics (3<sup>rd</sup> Grade)

**Standard (Common Core):** “Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.” (Common Core, 3.NBT.2)

### **PREPARATION**

- **Objective:** The learner will use one of four addition strategies (i.e., standard algorithm, partial sums, expanded notation, or “sketch and solve”) to correctly find the sum of multiple three-digit numbers.
- **What materials will you need?**
  - Base ten blocks (Station #1)
  - 5-7 whiteboards and whiteboard markers (Station #1)
  - 3x5 note cards and students’ pencils (Station #1)
  - 5 decks of playing cards (only A-9 in deck) (Station #2)
  - “War of the Digits” worksheets and students’ pencils (Station #2)
  - 5-7 iPads – one per student in each small group (Station #3)
- **Assessment**
  - **Formative assessment:** The pre-assessment during Station #1 (direct instruction) will guide what material is covered and for how long during the station. Also, observations of students’ responses and questions during Station #1 will guide the teacher’s instruction.
  - **Summative assessment:**
    - **Station #1** – On a 3x5 note card, students will complete an exit slip in which they must solve a three-digit addition exercise involving grouping (459+382). The teacher will analyze this for completion, use of strategy, and correctness of addition.
    - **Station #2** – The teacher will analyze students’ worksheets for completion, use of strategies, and correctness of addition.
- **What do you anticipate students might struggle with?**
  - If students are not completely comfortable with place value and one- and two-digit addition, they may struggle with three-digit addition.
- **How will you integrate technology?**
  - I will use the Document Camera to introduce “War of the Digits”.
  - Students will use their classroom iPads during Station #3 to complete addition exercises using two- and/or three-digit numbers.

## TEACHING

- **Material Needing Review:** Some students may need review of place value as well as one- and two-digit addition, whereas others may have a firm grasp on all three concepts and be able to move directly into three-digit addition.
- **Pre-assessment:** During Station #1 (direct instruction), I will prompt students to recall their experience thus far with two-digit addition. I will then give students a two-digit addition exercise ( $76 + 48$ ) to solve individually on their whiteboards. We will reconvene as a group, and the students will share what strategies they used to solve the exercise (I will make a list of these strategies on the board). This will give me an idea not only of whether or not each student is able to correctly add two-digit numbers (and thus how much time should be spent on place value and one- and two-digit addition), but also which strategies they're already familiar with.
- **Lesson Components**
  - **Whole-Class Introduction**
    - State the lesson objective (three-digit addition using strategies)
    - Explanation of the three stations
      - **Station #1** – Lesson with Ms. Blauwkamp (three-digit addition)
      - **Station #2** – “War of the Digits” game
        - Explain the rules and goal of the game (*refer to worksheet*)
      - **Station #3** – IXL exercises on iPads
        - Students can only complete exercises in sections “G” or “I” of 2<sup>nd</sup> grade.
        - Section “G” reviews two-digit addition; section “I” explores the material they’ll be learning with Ms. Blauwkamp.
        - Tell students they do NOT need to sign in to IXL
    - Identify group members and where those groups will be working
    - Transition to stations (tell groups which station they need to go to)
  - **Station #1** (Direct Instruction with Ms. Blauwkamp)
    - **Pre-assessment** (*see above – 76+48 sample problem*)
    - **Review of Place Value** (length determined by need)
      - Use base ten blocks to provide visual
    - **Review of One-Digit Addition** (length determined by need)
      - Use base ten blocks to provide visual
    - **Review of Two-Digit Addition** (length determined by need)
      - Addition with and without regrouping
      - Use base ten blocks to provide visual

- **Introduction of Three-Digit Addition**
  - **Without Regrouping** (teacher-led; students assist)
    - Provide visual of a number (draw three columns on whiteboard; use base ten blocks to illustrate 126)
    - Provide visual for a second number (243)
    - Solve  $126+243$  using the base ten blocks
    - Utilize strategies ("sketch and solve," expanded notation, partial sums, and/or standard algorithm) to solve  $126+243$
    - Student practice:
  - **With Regrouping** (teacher-led; students assist)
    - Provide visual of a number (draw three columns on whiteboard; use base ten blocks to illustrate 137)
    - Provide visual for a second number (265)
    - Solve  $137+265$  using the base ten blocks
    - Utilize strategies ("sketch and solve," expanded notation, partial sums, and/or standard algorithm) to solve  $137+265$
    - Student practice:
  
- **Summative Assessment**
  - On a 3x5 note card, students will complete an exit slip in which they must solve a three-digit addition exercise involving grouping ( $459+382$ ).
  
- **Station #2** (Extension Activity)
  - Students will play "War of the Digits" with a partner using a modified deck of playing cards (only cards A-9 included) and the attached worksheet. (*See worksheet for instructions.*)
  
- **Station #3** (iPad Technology Integration Activity)
  - Students will work independently on an iPad to complete any of the IXL exercises in sections "G" ("Addition – two digits") or "I" ("Addition – three digits") within the 2<sup>nd</sup> grade level.
  - "G" exercises will serve as a review of the concepts the students have already learned (place value, one- and two-digit addition).
  - "I" exercises will explore what Ms. Blauwkamp will be teaching (three-digit addition).
  
- **Whole-Class Closing**
  - Restate the lesson objective (three-digit addition using strategies)
  - Remind students they will be reviewing this throughout the week
  - Clean-up/transition to next activity

## ACCOMMODATIONS

- **What will you do to support students are struggling?**
  - **Station #1:** We will spend more time reviewing place value and one- and two-digit addition before moving on to three-digit addition. We may not introduce all four strategies, but instead focus on one or two.
  - **Station #2:** Students will not be required to complete the entire worksheet (all five rounds), so they will be able to work at a pace that fits their abilities.
  - **Station #3:** Students who are struggling can complete exercises under section "G" ("Addition – two digits"). The exercises within section "G" vary in difficulty, so students will be able to complete exercises that fit their abilities.
  
- **How will you challenge students who finish early or need more of a challenge?**
  - **Station #1:** We will forego lengthy coverage of place value and one- and two-digit addition and focus on three-digit addition, particularly the introduction of multiple strategies (perhaps all four). We could take it one step further and apply the same principles and strategies to more than three digit addition exercises as well.
  - **Station #2:** Pairs of students who finish early can repeat the same game except instead of aiming to have the largest sum each round, players will aim to have the smallest sum.
  - **Station #3:** Students who need a challenge can complete exercises under section "I" ("Addition – three digits"). The exercises within section "I" vary in difficulty, so students will be able to complete exercises that fit their abilities.

## **Introducing Three-Digit Addition**

### **Direct Lesson Plan – “Real World” Version**

**OBJECTIVE:** TLW use one of four addition strategies (i.e., standard algorithm, partial sums, expanded notation, or “sketch and solve”) to correctly find the sum of multiple three-digit numbers.

**STANDARD:** “Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.” (Common Core, 3.NBT.2)

#### **MATERIALS:**

- Base ten blocks (Station #1)
- 5-7 whiteboards and whiteboard markers (Station #1)
- 3x5 note cards and students’ pencils (Station #1)
- 5 decks of playing cards (only A-9 in deck) (Station #2)
- “War of the Digits” worksheets and students’ pencils (Station #2)
- 5-7 iPads – one per student in each small group (Station #3)

**LENGTH:** 75-80 minutes (5-10 min introduction; 22 min/station; 4 min closing)

#### **STATION DIRECTIONS/TIMING**

##### **Introduction** (5-10 min)

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|--|-------------|
| 1. State lesson objective  | 1 minute    |
| 2. Introduce stations  | 4-9 minutes |
| a. (1) Direct instruction; (2) “War of the Digits”; (3) IXL iPad Use |             |

##### **Station #1** (Direct Instruction with Ms. Blauwkamp; 22 min)

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|---|------------|
| 1. Pre-assessment ( $76+48$ )           | 3 minutes  |
| 2. Direct Instruction (Review/Teaching) | 15 minutes |
| 3. Summative Assessment ( $459+382$ )   | 2 minutes  |
| 4. Transition                           | 2 minutes  |

##### **Station #2** (“War of the Digits” Game; 22 min)

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|-----------------------------|------------|
| 1. “War of the Digits” Game | 20 minutes |
| 2. Transition               | 2 minutes  |

##### **Station #3** (IXL iPad Activity; 22 min)

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|----------------------------------|------------|
| 1. Work on IXL (Sections G or I) | 20 minutes |
| 2. Transition                    | 2 minutes  |

##### **Closing** (4 min)

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|---|----------|
| 1. Conclusion/restate lesson objective  | 2 minute |
| 2. Clean-up/transition to next activity | 2 minute |

## ASSESSMENTS

- **Pre-assessment:** Sample exercise ( $76+48$ )
- **Formative assessment:** Pre-assessment; observations of student responses
- **Summative assessments:**
  - **Station #1:** Analysis of students' exit slips (*solve  $459+382$  using a strategy*)
  - **Station #2:** Analysis of students' worksheets

## ACCOMMODATIONS

- **Struggling students**
  - **Station #1:** Spend more time on place value and one-/two-digit addition, less on three-digit. Introduce only one or two strategies instead of all four.
  - **Station #2:** Students can work at their own pace and do not need to complete all five rounds on the worksheet.
  - **Station #3:** 2<sup>nd</sup> grade section "G" exercises (two-digit addition)
- **Advanced students/early finishers**
  - **Station #1:** Spend less time on place value and one-/two-digit addition, more on three-digit. Introduce more strategies. Extend to addition of numbers with more than three digits.
  - **Station #2:** Repeat game; goal is now smallest (instead of largest) sum
  - **Station #3:** 2<sup>nd</sup> grade section "I" exercises (three-digit addition)