**CODE: 110** 

# **Background**

Imagine you are teaching a math lesson to a class of 16 second grade students. The purpose of this lesson is to examine the ways properties of operations can be used to add numbers.

You have asked the students to work with a partner to solve the problem 27 + 23 using any method that works best for them. The partners have completed their work. Now you plan to select 3 individual students to present their work to the class.

Look at the strategies below and the descriptions of the students. Then choose which three students you would like to have present.

## **The Problem**

27 + 23

## **Learning Goal**

Your goal is for the students to be able to understand how properties of operation can be used to add numbers.

- · You want the students to understand that two numbers can be added in any order (commutative property).
  - Example: 3 + 4 = 4 + 3
- You also want the students to understand that 3 numbers can be regrouped and added in any order (associative property).
  - $\cdot$  Example: 9 + (1 + 7) = (9 + 1) + 7

#### **2nd Grade Student Descriptions** Carter (he/him) Camille (she/her) Ava (she/her) Liam (he/him) Ava is a white girl who speaks Liam is a white boy who Carter is a Black boy who Camille is a white girl who English as her first language. speaks English as his first speaks French as her first speaks English as his first She has no identified language. He has no language. She is an EL language. He has no identified disabilities, and he student who speaks English disabilities. She receives free identified disabilities, and he receives free or reduced at an advanced level. She has or reduced lunch. She has a does not receive free or lunch. He has a history of no identified disabilities, and history of low success and low reduced lunch. He has a average success and little to she does not receive free or participation during math history of average success no participation during math reduced lunch. She has a lessons. She also loves and average participation lessons. He also loves to cook history of high success and gardening. during math lessons. He also high participation during math and bake. loves comic books. lessons. She also does karate. Strategy A Strategy B • I broke the 27 into 25 and 2. First I added 20 and 20 to get 40. Then I added the 2 and 23 to make 25. Then I added 3 more to get 43. 25 + 2Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 25 40 + 3 = 4325 + 2550 Oliver (he/him) CJ (they/them) Adriel (he/him) Angel (she/her) CJ is a gender fluid white Oliver is a white boy who Adriel is an Indigenous boy Angel is a Black girl who speaks English as his first child who speaks English as who speaks English as his speaks English as her first language. He has no their first language. They have first language. He has no language. She has no identified disabilities, and he no identified disabilities, and identified disabilities, and he identified disabilities, and she does not receive free or they do not receive free or receives free or reduced does not receive free or reduced lunch. He has a reduced lunch. They have a lunch. He has a history of reduced lunch. She has a history of high success and history of high success and average success and low history of low success and low high participation during math average participation during participation during math participation during math lessons. He also enjoys riding math lessons. They also love lessons. He also loves to play lessons. She also enjoys his bike. to draw and paint. soccer. making origami. Strategy D Strategy C +2 Step 1 1. I made 27 and 23 +25 with the blocks. 2. I combined the tens together. Then I combined the ones. That's 4 tens, which is 40. Plus 10 ones, 23 0 50 which is 50. I started at 23. Step 2 Then I took 2 from the 27 to make a jump of 2. That makes 25. Then I only needed to add 25 more, so I made another jump and got 50.

#### Daniela (she/her) Valentina (she/her) Jackie (she/they) Mason (he/him) Daniela is a Latina girl who Valentina is a Latina girl who Jackie is a white transgender Mason is a white boy who speaks English as her first speaks English as her first girl who speaks English as speaks English as his first language. She has no her first language. She has no language. He is on an IEP for language. She has an IEP for identified disabilities. She identified disabilities, and she speech impairment severe ADHD. He receives does not receive free or (stuttering). She does not receives free or reduced free or reduced lunch. He has reduced lunch. She has a receive free or reduced lunch. lunch. She has a history of a history of high success and She has a history of average history of average success average success and low low participation during math and low participation during success and low participation participation during math lessons. He also enjoys during math lessons. She also math lessons. She also loves lessons. She also loves singing. animals. to dance. enjoys spending time in nature. Strategy E Strategy F First, I added 7 and 3 27 to get 10. I put a zero 23 + 27 + 23 under the 7. I made it 23 + 27 because that's easier for 50 • Then I put the 1 up me to think about. 23 + (2 + 25)Then I broke the 27 into 2 and 25. above the 2. Last I (23 + 2) = 25Then I combined the 2 with the 23, and I got added 1 + 2 + 2 to get 50. Jada (she/her) Grace (she/her) Mateo (he/him) Alejandro (he/him) Grace is an Asian girl who Mateo is a Latino boy who Jada is a Black girl who Alejandro is a Latino boy who speaks English as her first speaks Spanish as his first speaks English as her first speaks Spanish as his first language. He is an EL student language. She has an IEP for language. She has no language. He is an EL student dyslexia. She does not who speaks English at an identified disabilities, and she who speaks English at a receive free or reduced lunch. intermediate level. He has no does not receive free or beginner level. He has no She has a history of low identified disabilities. He reduced lunch. She has a identified disabilities. He receives free or reduced history of high success and receives free or reduced success and average participation during math lunch. He has a history of high high participation during math lunch. He has a history of low lessons. She also plays success and average lessons. She also plays on a success and low participation basketball. participation during math softball team. during math lessons. He also lessons. He also likes to play loves to play Minecraft. the guitar. Strategy G Strategy H 1. 1. I made 27 and 23 with the blocks. 2. I pulled 2 apart from the 27 to make 25. 3. I put the 2 with the 23 to make 25. That makes 25 27 + 23• First I added 20 and 20 to get 40. + 25 which is 50. Then I added 7 and 3 to get 10. 20 + 20 = 40• Then I added 40 and 10 to get 50. 7 + 3 = 1040 + 10 = 50