**CODE: 177** 

# **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** Adriel (he/him) Alejandro (he/him) Jackie (she/they) CJ (they/them) Alejandro is a Latino boy who Jackie is a white transgender Adriel is an Indigenous boy CJ is a gender fluid white who speaks English as his speaks Spanish as his first girl who speaks English as child who speaks English as first language. He has no language. He is an EL student her first language. She has no their first language. They have identified disabilities, and he who speaks English at a identified disabilities. She no identified disabilities, and receives free or reduced beginner level. He has no receives free or reduced they do not receive free or lunch. He has a history of identified disabilities. He lunch. She has a history of reduced lunch. They have a average success and low receives free or reduced average success and low history of high success and participation during math lunch. He has a history of low participation during math average participation during lessons. He also loves to play success and low participation lessons. She also loves math lessons. They also love soccer. during math lessons. He also animals. to draw and paint. loves to play Minecraft. Strategy B Strategy A 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. Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 25 40 + 3 = 4325 + 2550 Valentina (she/her) Angel (she/her) Daniela (she/her) Grace (she/her) Valentina is a Latina girl who Angel is a Black girl who Daniela is a Latina girl who Grace is an Asian girl who speaks English as her first language. She has an IEP for language. She has no language. She has no language. She has an IEP for speech impairment identified disabilities, and she identified disabilities, and she dyslexia. She does not (stuttering). She does not does not receive free or does not receive free or receive free or reduced lunch. receive free or reduced lunch. reduced lunch. She has a reduced lunch. She has a She has a history of low She has a history of average history of low success and low history of average success success and average success and low participation participation during math and low participation during participation during math during math lessons. She also lessons. She also enjoys math lessons. She also loves lessons. She also plays enjoys spending time in making origami. to dance. basketball. nature. Strategy C Strategy D 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.

Step 2

I started at 23.

and got 50.

That makes 25.

Then I took 2 from the 27 to make a jump of 2.

Then I only needed to add 25 more, so I made another jump

#### Oliver (he/him) Mason (he/him) Jada (she/her) Carter (he/him) Mason is a white boy who Jada is a Black girl who Oliver is a white boy who Carter is a Black boy who speaks English as his first speaks English as her first speaks English as his first speaks English as his first language. He is on an IEP for language. She has no language. He has no language. He has no severe ADHD. He receives identified disabilities, and she identified disabilities, and he identified disabilities, and he free or reduced lunch. He has does not receive free or does not receive free or receives free or reduced a history of high success and reduced lunch. She has a reduced lunch. He has a lunch. He has a history of low participation during math history of high success and history of high success and average success and little to high participation during math ino participation during math lessons. He also enjoys high participation during math lessons. She also plays on a lessons. He also enjoys riding lessons. He also loves to cook singing. his bike. softball team. and bake. Strategy F Strategy E 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 me to think about. Then I put the 1 up 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 Liam (he/him) Mateo (he/him) Camille (she/her) Ava (she/her) Liam is a white boy who Ava is a white girl who speaks Mateo is a Latino boy who Camille is a white girl who English as her first language. speaks English as his first speaks Spanish as his first speaks French as her first She has no identified language. He is an EL student language. She is an EL language. He has no identified disabilities, and he disabilities. She receives free who speaks English at an student who speaks English does not receive free or or reduced lunch. She has a intermediate level. He has no at an advanced level. She has history of low success and low identified disabilities. He no identified disabilities, and reduced lunch. He has a history of average success participation during math receives free or reduced she does not receive free or lunch. He has a history of high reduced lunch. She has a lessons. She also loves and average participation during math lessons. He also success and average history of high success and gardening. loves comic books. high participation during math participation during math lessons. He also likes to play lessons. She also does the guitar. karate. Strategy H Strategy G 1. I made 27 and 23 with the blocks 27 + 23• First I added 20 and 20 to get 40. 2. I pulled 2 apart from the Then I added 7 and 3 to get 10. 20 + 20 = 4027 to make 25. • Then I added 40 and 10 to get 50. 3. I put the 2 with the 23 to 7 + 3 = 10make 25. That makes 25 + 25 which is 50. 40 + 10 = 50