**CODE: 157** 

# **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 Liam (he/him) Mateo (he/him) Jada (she/her) Camille (she/her) Jada is a Black girl who Liam is a white boy who Mateo is a Latino boy who Camille is a white girl who speaks French as her first speaks English as his first speaks Spanish as his first speaks English as her first language. He has no language. He is an EL student language. She has no language. She is an EL identified disabilities, and he who speaks English at an identified disabilities, and she student who speaks English does not receive free or intermediate level. He has no does not receive free or at an advanced level. She has reduced lunch. She has a reduced lunch. He has a identified disabilities. He no identified disabilities, and history of average success receives free or reduced history of high success and she does not receive free or and average participation lunch. He has a history of high high participation during math reduced lunch. She has a during math lessons. He also success and average lessons. She also plays on a history of high success and softball team. high participation during math loves comic books. participation during math lessons. He also likes to play lessons. She also does karate. the guitar. Strategy B Strategy A 27 + 23• 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 Alejandro (he/him) Ava (she/her) Mason (he/him) Jackie (she/they) Aleiandro is a Latino boy who Ava is a white girl who speaks Mason is a white boy who Jackie is a white transgender speaks Spanish as his first English as her first language. speaks English as his first girl who speaks English as language. He is an EL student She has no identified language. He is on an IEP for her first language. She has no who speaks English at a disabilities. She receives free severe ADHD. He receives identified disabilities. She beginner level. He has no or reduced lunch. She has a free or reduced lunch. He has i receives free or reduced identified disabilities. He history of low success and low a history of high success and lunch. She has a history of receives free or reduced participation during math low participation during math average success and low lunch. He has a history of low lessons. She also loves lessons. He also enjoys participation during math lessons. She also loves success and low participation gardening. singing. during math lessons. He also animals. loves to play Minecraft. Strategy C Strategy D +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.

#### CJ (they/them) Oliver (he/him) Angel (she/her) Grace (she/her) CJ is a gender fluid white Angel is a Black girl who Grace is an Asian girl who Oliver is a white boy who child who speaks English as speaks English as her first speaks English as her first speaks English as his first their first language. They have language. She has no language. She has an IEP for language. He has no no identified disabilities, and identified disabilities, and she dyslexia. She does not identified disabilities, and he they do not receive free or does not receive free or receive free or reduced lunch. does not receive free or reduced lunch. They have a reduced lunch. She has a She has a history of low reduced lunch. He has a history of high success and history of low success and low success and average history of high success and average participation during participation during math participation during math high participation during math math lessons. They also love lessons. She also enjoys lessons. She also plays lessons. He also enjoys riding his bike. to draw and paint. basketball. making origami. 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 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 Adriel (he/him) Valentina (she/her) Daniela (she/her) Carter (he/him) Adriel is an Indigenous boy Daniela is a Latina girl who Valentina is a Latina girl who Carter is a Black boy who who speaks English as his speaks English as her first speaks English as her first speaks English as his first first language. He has no language. She has no language. She has an IEP for language. He has no identified disabilities, and he identified disabilities, and she speech impairment identified disabilities, and he receives free or reduced does not receive free or (stuttering). She does not receives free or reduced receive free or reduced lunch. Hunch. He has a history of lunch. He has a history of reduced lunch. She has a average success and low history of average success She has a history of average average success and little to and low participation during success and low participation participation during math no participation during math lessons. He also loves to play math lessons. She also loves during math lessons. She also lessons. He also loves to cook soccer. to dance. enjoys spending time in and bake. nature. Strategy G Strategy H 1. 1. I made 27 and 23 with 27 + 23 the blocks • 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