**CODE: 180** 

# **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).
  - Example: 9 + (1 + 7) = (9 + 1) + 7

### **2nd Grade Student Descriptions** CJ (they/them) Mason (he/him) Oliver (he/him) Jackie (she/they) CJ is a gender fluid white Mason is a white boy who Oliver is a white boy who Jackie is a white transgender child who speaks English as speaks English as his first speaks English as his first girl who speaks English as their first language. They have language. He is on an IEP for language. He has no her first language. She has no no identified disabilities, and severe ADHD. He receives identified disabilities, and he identified disabilities. She they do not receive free or free or reduced lunch. He has does not receive free or receives free or reduced reduced lunch. He has a reduced lunch. They have a a history of high success and lunch. She has a history of history of high success and low participation during math history of high success and average success and low average participation during lessons. He also enjoys high participation during math participation during math math lessons. They also love singing. lessons. He also enjoys riding lessons. She also loves to draw and paint. his bike. animals. Strategy A Strategy B 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. 40 25 40 + 3 = 4325 + 2550 Carter (he/him) Jada (she/her) Liam (he/him) Ava (she/her) Carter is a Black boy who Jada is a Black girl who Liam is a white boy who Ava is a white girl who speaks speaks English as his first speaks English as her first speaks English as his first English as her first language. language. He has no language. She has no language. He has no She has no identified identified disabilities, and he identified disabilities, and she identified disabilities, and he disabilities. She receives free receives free or reduced does not receive free or does not receive free or or reduced lunch. She has a lunch. He has a history of reduced lunch. She has a reduced lunch. He has a history of low success and low average success and little to history of high success and history of average success participation during math no participation during math high participation during math and average participation lessons. She also loves lessons. He also loves to cook lessons. She also plays on a during math lessons. He also gardening. and bake. softball team. loves comic books. Strategy C Strategy D Step 1 1. I made 27 and 23 +2 +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 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.

#### Mateo (he/him) Grace (she/her) Daniela (she/her) Angel (she/her) Mateo is a Latino boy who Grace is an Asian girl who Daniela is a Latina girl who Angel is a Black girl who speaks Spanish as his first speaks English as her first speaks English as her first speaks English as her first language. She has no language. She has no language. He is an EL student language. She has an IEP for identified disabilities, and she identified disabilities, and she who speaks English at an dyslexia. She does not intermediate level. He has no receive free or reduced lunch. does not receive free or does not receive free or identified disabilities. He She has a history of low reduced lunch. She has a reduced lunch. She has a receives free or reduced success and average history of average success history of low success and low lunch. He has a history of high participation during math and low participation during participation during math success and average lessons. She also plays math lessons. She also loves lessons. She also enjoys participation during math basketball. to dance. making origami. lessons. He also likes to play the guitar. 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 Adriel (he/him) Camille (she/her) Alejandro (he/him) Valentina (she/her) Camille is a white girl who Adriel is an Indigenous boy Aleiandro is a Latino boy who Valentina is a Latina girl who speaks French as her first speaks Spanish as his first speaks English as her first who speaks English as his language. She is an EL language. He is an EL student language. She has an IEP for first language. He has no identified disabilities, and he student who speaks English who speaks English at a speech impairment at an advanced level. She has beginner level. He has no (stuttering). She does not receives free or reduced identified disabilities. He no identified disabilities, and receive free or reduced lunch. Hunch. He has a history of she does not receive free or receives free or reduced She has a history of average average success and low reduced lunch. She has a success and low participation lunch. He has a history of low participation during math during math lessons. She also lessons. He also loves to play history of high success and success and low participation high participation during math during math lessons. He also enjoys spending time in soccer. lessons. She also does loves to play Minecraft. nature. karate. Strategy G Strategy H 1. 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