**CODE: 163** 

# **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 Ava (she/her) Mateo (he/him) Jada (she/her) Camille (she/her) Jada is a Black girl 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 French as her first speaks Spanish as his first speaks English as her first She has no identified language. He is an EL student language. She has no language. She is an EL disabilities. She receives free who speaks English at an identified disabilities, and she student who speaks English or reduced lunch. She has a intermediate level. He has no does not receive free or at an advanced level. She has reduced lunch. She has a history of low success and low identified disabilities. He no identified disabilities, and participation during math receives free or reduced history of high success and she does not receive free or lessons. She also loves lunch. He has a history of high high participation during math reduced lunch. She has a gardening. success and average lessons. She also plays on a history of high success and softball team. high participation during math participation during math lessons. He also likes to play lessons. She also does karate. the guitar. 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. 25 + 2Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 25 40 + 3 = 4325 + 2550 CJ (they/them) Oliver (he/him) Angel (she/her) Jackie (she/they) CJ is a gender fluid white Oliver is a white boy who Angel is a Black girl who Jackie is a white transgender child who speaks English as speaks English as his first speaks English as her first girl who speaks English as their first language. They have language. He has no language. She has no her first language. She has no no identified disabilities, and identified disabilities, and he identified disabilities, and she identified disabilities. She they do not receive free or does not receive free or does not receive free or receives free or reduced reduced lunch. They have a reduced lunch. He has a reduced lunch. She has a lunch. She has a history of history of high success and history of high success and history of low success and low average success and low average participation during high participation during math participation during math participation during math math lessons. They also love lessons. He also enjoys riding lessons. She also enjoys lessons. She also loves his bike. to draw and paint. making origami. animals. 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. 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.

#### Alejandro (he/him) Carter (he/him) Daniela (she/her) Adriel (he/him) Alejandro is a Latino boy who : Carter is a Black boy who Daniela is a Latina girl who Adriel is an Indigenous boy speaks Spanish as his first speaks English as his first speaks English as her first who speaks English as his language. She has no first language. He has no language. He is an EL student language. He has no identified disabilities, and she who speaks English at a identified disabilities, and he identified disabilities, and he beginner level. He has no receives free or reduced does not receive free or receives free or reduced identified disabilities. He lunch. He has a history of reduced lunch. She has a lunch. He has a history of receives free or reduced average success and little to history of average success average success and low lunch. He has a history of low no participation during math and low participation during participation during math success and low participation lessons. He also loves to cook math lessons. She also loves lessons. He also loves to play during math lessons. He also and bake. to dance. soccer. loves to play Minecraft. 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. Grace (she/her) Mason (he/him) Valentina (she/her) Liam (he/him) Grace is an Asian girl who Mason is a white boy who Valentina is a Latina girl who Liam is a white boy who speaks English as her first speaks English as his first speaks English as her first speaks English as his first language. She has an IEP for language. He is on an IEP for language. She has an IEP for language. He has no dyslexia. She does not severe ADHD. He receives speech impairment identified disabilities, and he receive free or reduced lunch. free or reduced lunch. He has (stuttering). She does not does not receive free or She has a history of low a history of high success and receive free or reduced lunch. reduced lunch. He has a low participation during math She has a history of average success and average history of average success lessons. He also enjoys success and low participation and average participation participation during math during math lessons. She also during math lessons. He also lessons. She also plays singing. loves comic books. basketball. enjoys spending time in nature. 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