**CODE: 232** 

# **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** Jada (she/her) Daniela (she/her) Carter (he/him) Grace (she/her) Jada is a Black girl who Daniela is a Latina girl who Carter is a Black boy who Grace is an Asian girl who speaks English as her first speaks English as her first speaks English as his first speaks English as her first language. She has no language. She has no language. He has no language. She has an IEP for identified disabilities, and she identified disabilities, and she identified disabilities, and he dyslexia. She does not does not receive free or does not receive free or receives free or reduced receive free or reduced lunch. reduced lunch. She has a reduced lunch. She has a lunch. He has a history of She has a history of low history of high success and history of average success average success and little to success and average high participation during math and low participation during no participation during math participation during math lessons. She also plays on a math lessons. She also loves lessons. He also loves to cook lessons. She also plays softball team. to dance. and bake. basketball. Strategy A Strategy B 27 + 23 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 Camille (she/her) Jackie (she/they) Mateo (he/him) Adriel (he/him) Mateo is a Latino boy who Camille is a white girl who Jackie is a white transgender Adriel is an Indigenous boy speaks French as her first girl who speaks English as speaks Spanish as his first who speaks English as his language. She is an EL her first language. She has no language. He is an EL student first language. He has no student who speaks English identified disabilities. She who speaks English at an identified disabilities, and he at an advanced level. She has receives free or reduced intermediate level. He has no receives free or reduced no identified disabilities, and lunch. She has a history of identified disabilities. He lunch. He has a history of she does not receive free or average success and low receives free or reduced average success and low reduced lunch. She has a participation during math lunch. He has a history of high participation during math lessons. She also loves history of high success and success and average lessons. He also loves to play participation during math high participation during math animals. soccer. lessons. She also does lessons. He also likes to play karate. the guitar. 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

which is 50.

combined the ones.

That's 4 tens, which is 40. Plus 10 ones,

23

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

• I started at 23.

and got 50.

That makes 25.

50

0

Step 2

#### Alejandro (he/him) Liam (he/him) Angel (she/her) Ava (she/her) Alejandro is a Latino boy who Liam is a white boy who Angel is a Black girl who Ava is a white girl who speaks English as her first language. speaks Spanish as his first speaks English as his first speaks English as her first language. She has no She has no identified language. He is an EL student language. He has no disabilities. She receives free who speaks English at a identified disabilities, and he identified disabilities, and she beginner level. He has no does not receive free or does not receive free or or reduced lunch. She has a identified disabilities. He reduced lunch. He has a reduced lunch. She has a history of low success and low receives free or reduced history of low success and low participation during math history of average success lessons. She also loves lunch. He has a history of low and average participation participation during math success and low participation during math lessons. He also lessons. She also enjoys gardening. during math lessons. He also loves comic books. making origami. loves to play Minecraft. Strategy E Strategy F First, I added 7 and 3 23 + 27 27 to get 10. I put a zero I made it 23 + 27 because that's easier for + 23 under the 7. me to think about. 23 + (2 + 25)50 Then I put the 1 up Then I broke the 27 into 2 and 25. (23 + 2) = 25above the 2. Last I Then I combined the 2 with the 23, and I got added 1 + 2 + 2 to get 50. Oliver (he/him) Mason (he/him) Valentina (she/her) CJ (they/them) Oliver is a white boy who Mason is a white boy who Valentina is a Latina girl who CJ is a gender fluid white speaks English as his first speaks English as his first speaks English as her first child who speaks English as language. He has no language. He is on an IEP for language. She has an IEP for their first language. They have identified disabilities, and he severe ADHD. He receives speech impairment no identified disabilities, and does not receive free or free or reduced lunch. He has (stuttering). She does not they do not receive free or reduced lunch. He has a a history of high success and receive free or reduced lunch. reduced lunch. They have a low participation during math She has a history of average history of high success and history of high success and success and low participation average participation during high participation during math lessons. He also enjoys lessons. He also enjoys riding singing. during math lessons. She also math lessons. They also love enjoys spending time in his bike. to draw and paint. nature. Strategy G Strategy H 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