**CODE: 210** 

# **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** Grace (she/her) Angel (she/her) Ava (she/her) Valentina (she/her) Angel is a Black girl who Ava is a white girl who speaks Valentina is a Latina girl who Grace is an Asian girl who English as her first language. speaks English as her first speaks English as her first speaks English as her first She has no identified language. She has an IEP for language. She has no language. She has an IEP for dyslexia. She does not identified disabilities, and she disabilities. She receives free speech impairment receive free or reduced lunch. does not receive free or or reduced lunch. She has a (stuttering). She does not She has a history of low reduced lunch. She has a history of low success and low receive free or reduced lunch. success and average history of low success and low participation during math She has a history of average participation during math participation during math lessons. She also loves success and low participation during math lessons. She also lessons. She also plays lessons. She also enjoys gardening. basketball. making origami. enjoys spending time in 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. 40 + 3 = 4325 + 2550 Jackie (she/they) Camille (she/her) Jada (she/her) Alejandro (he/him) Jackie is a white transgender Camille is a white girl who Jada is a Black girl who Aleiandro is a Latino boy who girl who speaks English as speaks French as her first speaks English as her first speaks Spanish as his first her first language. She has no language. She is an EL language. She has no language. He is an EL student identified disabilities. She student who speaks English identified disabilities, and she who speaks English at a receives free or reduced at an advanced level. She has does not receive free or beginner level. He has no lunch. She has a history of no identified disabilities, and reduced lunch. She has a identified disabilities. He average success and low she does not receive free or history of high success and receives free or reduced participation during math reduced lunch. She has a high participation during math | lunch. He has a history of low lessons. She also loves history of high success and lessons. She also plays on a success and low participation animals. high participation during math softball team. during math lessons. He also lessons. She also does loves to play Minecraft. karate. 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, 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.

#### Carter (he/him) Oliver (he/him) Mason (he/him) Daniela (she/her) Mason is a white boy who Carter is a Black boy who Daniela is a Latina girl who Oliver is a white boy who speaks English as his first speaks English as his first speaks English as her first speaks English as his first language. She has no language. He has no language. He is on an IEP for language. He has no identified disabilities, and she identified disabilities, and he severe ADHD. He receives identified disabilities, and he receives free or reduced free or reduced lunch. He has does not receive free or does not receive free or lunch. He has a history of a history of high success and reduced lunch. She has a reduced lunch. He has a average success and little to low participation during math history of average success history of high success and and low participation during high participation during math no participation during math lessons. He also enjoys lessons. He also loves to cook singing. math lessons. She also loves lessons. He also enjoys riding his bike. to dance. and bake. 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 CJ (they/them) Liam (he/him) Mateo (he/him) Adriel (he/him) CJ is a gender fluid white Liam is a white boy who Mateo is a Latino boy who Adriel is an Indigenous boy child who speaks English as speaks English as his first speaks Spanish as his first who speaks English as his their first language. They have language. He has no language. He is an EL student i first language. He has no no identified disabilities, and identified disabilities, and he who speaks English at an identified disabilities, and he they do not receive free or does not receive free or intermediate level. He has no receives free or reduced reduced lunch. They have a identified disabilities. He lunch. He has a history of reduced lunch. He has a history of high success and history of average success receives free or reduced average success and low average participation during and average participation lunch. He has a history of high participation during math math lessons. They also love during math lessons. He also success and average lessons. He also loves to play loves comic books. to draw and paint. participation during math soccer. lessons. He also likes to play the guitar. 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