**CODE: 122** 

# **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** Valentina (she/her) Ava (she/her) Angel (she/her) Adriel (he/him) Angel is a Black girl who Valentina is a Latina girl who Ava is a white girl who speaks Adriel is an Indigenous boy English as her first language. speaks English as her first who speaks English as his speaks English as her first language. She has an IEP for She has no identified language. She has no first language. He has no speech impairment disabilities. She receives free identified disabilities, and she identified disabilities, and he or reduced lunch. She has a (stuttering). She does not does not receive free or receives free or reduced reduced lunch. She has a receive free or reduced lunch. history of low success and low lunch. He has a history of She has a history of average participation during math history of low success and low average success and low success and low participation lessons. She also loves participation during math participation during math during math lessons. She also gardening. lessons. She also enjoys lessons. He also loves to play making origami. enjoys spending time in soccer. nature. 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. Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 40 + 3 = 4325 + 2550 Mason (he/him) Alejandro (he/him) Oliver (he/him) Carter (he/him) Mason is a white boy who Aleiandro is a Latino boy who Oliver is a white boy who Carter is a Black boy who speaks English as his first speaks Spanish as his first speaks English as his first speaks English as his first language. He is on an IEP for language. He is an EL student language. He has no language. He has no who speaks English at a severe ADHD. He receives identified disabilities, and he identified disabilities, and he free or reduced lunch. He has beginner level. He has no does not receive free or receives free or reduced a history of high success and identified disabilities. He reduced lunch. He has a lunch. He has a history of low participation during math receives free or reduced history of high success and average success and little to lessons. He also enjoys lunch. He has a history of low high participation during math no participation during math singing. success and low participation lessons. He also enjoys riding !lessons. He also loves to cook during math lessons. He also his bike. and bake. loves to play Minecraft. 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.

#### Grace (she/her) Jada (she/her) Jackie (she/they) Daniela (she/her) Grace is an Asian girl who Jada is a Black girl who Jackie is a white transgender Daniela is a Latina girl who speaks English as her first speaks English as her first girl who speaks English as speaks English as her first language. She has an IEP for her first language. She has no language. She has no language. She has no identified disabilities, and she identified disabilities. She identified disabilities, and she dyslexia. She does not receive free or reduced lunch. does not receive free or receives free or reduced does not receive free or She has a history of low reduced lunch. She has a lunch. She has a history of reduced lunch. She has a success and average history of high success and average success and low history of average success participation during math and low participation during participation during math high participation during math lessons. She also plays lessons. She also plays on a lessons. She also loves math lessons. She also loves basketball. softball team. animals. to dance. 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 Liam (he/him) CJ (they/them) Camille (she/her) Mateo (he/him) Liam is a white boy who Camille is a white girl who CJ is a gender fluid white Mateo is a Latino boy who speaks English as his first speaks French as her first child who speaks English as speaks Spanish as his first their first language. They have language. He is an EL student language. He has no language. She is an EL identified disabilities, and he student who speaks English no identified disabilities, and who speaks English at an does not receive free or at an advanced level. She has they do not receive free or intermediate level. He has no no identified disabilities, and reduced lunch. They have a identified disabilities. He reduced lunch. He has a history of average success she does not receive free or history of high success and receives free or reduced and average participation reduced lunch. She has a average participation during lunch. He has a history of high during math lessons. He also history of high success and math lessons. They also love success and average to draw and paint. loves comic books. high participation during math participation during math lessons. He also likes to play lessons. She also does karate. the guitar. Strategy H Strategy G 1. I made 27 and 23 with the blocks 2. I pulled 2 apart from the 27 to make 25. 3. I put the 2 with the 23 to make 25. That makes 25 27 + 23• First I added 20 and 20 to get 40. + 25 which is 50. Then I added 7 and 3 to get 10. 20 + 20 = 40• Then I added 40 and 10 to get 50. 7 + 3 = 1040 + 10 = 50