CODE: 95

# **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** Camille (she/her) Oliver (he/him) CJ (they/them) Adriel (he/him) Camille is a white girl who Oliver is a white boy who CJ is a gender fluid white Adriel is an Indigenous boy speaks French as her first speaks English as his first child who speaks English as who speaks English as his language. She is an EL language. He has no their first language. They have first language. He has no student who speaks English identified disabilities, and he no identified disabilities, and identified disabilities, and he at an advanced level. She has does not receive free or they do not receive free or receives free or reduced no identified disabilities, and reduced lunch. He has a reduced lunch. They have a lunch. He has a history of she does not receive free or history of high success and history of high success and average success and low reduced lunch. She has a high participation during math average participation during participation during math history of high success and lessons. He also enjoys riding math lessons. They also love lessons. He also loves to play high participation during math his bike. to draw and paint. soccer. lessons. She also does karate. 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. 25 40 + 3 = 4325 + 2550 Carter (he/him) Jackie (she/they) Alejandro (he/him) Ava (she/her) Aleiandro is a Latino boy who Ava is a white girl who speaks Carter is a Black boy who Jackie is a white transgender English as her first language. speaks English as his first girl who speaks English as speaks Spanish as his first language. He is an EL student She has no identified language. He has no her first language. She has no identified disabilities, and he identified disabilities. She who speaks English at a disabilities. She receives free receives free or reduced receives free or reduced beginner level. He has no or reduced lunch. She has a lunch. He has a history of lunch. She has a history of identified disabilities. He history of low success and low average success and little to average success and low receives free or reduced participation during math no participation during math participation during math lunch. He has a history of low lessons. She also loves lessons. He also loves to cook lessons. She also loves success and low participation gardening. and bake. animals. during math lessons. He also loves to play Minecraft. 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 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.

#### Mateo (he/him) Grace (she/her) Mason (he/him) Angel (she/her) Mason is a white boy who Grace is an Asian girl who Mateo is a Latino boy who Angel is a Black girl who speaks English as her first speaks English as his first speaks Spanish as his first speaks English as her first language. She has an IEP for language. He is an EL student language. She has no language. He is on an IEP for dyslexia. She does not severe ADHD. He receives who speaks English at an identified disabilities, and she receive free or reduced lunch. free or reduced lunch. He has intermediate level. He has no does not receive free or She has a history of low a history of high success and identified disabilities. He reduced lunch. She has a success and average low participation during math receives free or reduced history of low success and low participation during math lessons. He also enjoys lunch. He has a history of high participation during math lessons. She also enjoys lessons. She also plays success and average singing. basketball. participation during math making origami. lessons. He also likes to play the guitar. Strategy F Strategy E 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 Valentina (she/her) Liam (he/him) Jada (she/her) Daniela (she/her) Jada is a Black girl who Valentina is a Latina girl who Liam is a white boy who Daniela is a Latina 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 an IEP for language. He has no language. She has no identified disabilities, and she identified disabilities, and he identified disabilities, and she speech impairment does not receive free or (stuttering). She does not does not receive free or does not receive free or reduced lunch. She has a receive free or reduced lunch. reduced lunch. She has a reduced lunch. He has a history of high success and history of average success She has a history of average history of average success high participation during math success and low participation and average participation and low participation during during math lessons. He also math lessons. She also loves lessons. She also plays on a during math lessons. She also softball team. enjoys spending time in loves comic books. to dance. nature. Strategy G Strategy H 1. I made 27 and 23 with 1. 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