**CODE: 48** 

# **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** Angel (she/her) Carter (he/him) Mateo (he/him) Adriel (he/him) Angel is a Black girl who Mateo is a Latino boy who Carter is a Black boy who Adriel is an Indigenous boy speaks English as her first speaks English as his first speaks Spanish as his first who speaks English as his language. She has no language. He has no language. He is an EL student first language. He has no identified disabilities, and she identified disabilities, and he who speaks English at an identified disabilities, and he does not receive free or receives free or reduced intermediate level. He has no receives free or reduced reduced lunch. She has a lunch. He has a history of identified disabilities. He lunch. He has a history of history of low success and low average success and little to receives free or reduced average success and low participation during math no participation during math lunch. He has a history of high participation during math lessons. She also enjoys lessons. He also loves to cook success and average lessons. He also loves to play making origami. and bake. participation during math soccer. lessons. He also likes to play the guitar. Strategy B Strategy A 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 Grace (she/her) Alejandro (he/him) Camille (she/her) Daniela (she/her) Daniela is a Latina girl who Grace is an Asian girl who Alejandro is a Latino boy who Camille is a white girl who speaks English as her first speaks Spanish as his first speaks French as her first speaks English as her first language. She has an IEP for language. He is an EL student language. She is an EL language. She has no dvslexia. She does not who speaks English at a student who speaks English identified disabilities, and she receive free or reduced lunch. beginner level. He has no at an advanced level. She has does not receive free or She has a history of low identified disabilities. He no identified disabilities, and reduced lunch. She has a success and average receives free or reduced she does not receive free or history of average success participation during math lunch. He has a history of low reduced lunch. She has a and low participation during lessons. She also plays success and low participation history of high success and math lessons. She also loves basketball. during math lessons. He also high participation during math to dance. loves to play Minecraft. lessons. She also does karate. Strategy D Strategy C Step 1 1. I made 27 and 23 +2 +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, 25 23 0 50 which is 50.

Step 2

• I started at 23.

and got 50.

That makes 25.

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

#### CJ (they/them) Mason (he/him) Ava (she/her) Valentina (she/her) Mason is a white boy who Ava is a white girl who speaks CJ is a gender fluid white Valentina is a Latina girl who speaks English as his first English as her first language. child who speaks English as speaks English as her first language. He is on an IEP for She has no identified their first language. They have language. She has an IEP for severe ADHD. He receives disabilities. She receives free no identified disabilities, and speech impairment free or reduced lunch. He has or reduced lunch. She has a they do not receive free or (stuttering). She does not a history of high success and history of low success and low reduced lunch. They have a receive free or reduced lunch. low participation during math participation during math history of high success and She has a history of average lessons. She also loves average participation during success and low participation lessons. He also enjoys during math lessons. She also math lessons. They also love singing. gardening. to draw and paint. enjoys spending time in nature. 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. Oliver (he/him) Jada (she/her) Jackie (she/they) Liam (he/him) Oliver is a white boy who Jada is a Black girl who Jackie is a white transgender Liam is a white boy who speaks English as his first speaks English as her first girl who speaks English as speaks English as his first language. He has no language. She has no her first language. She has no language. He has no identified disabilities, and he identified disabilities, and she identified disabilities. She identified disabilities, and he does not receive free or does not receive free or receives free or reduced does not receive free or reduced lunch. He has a reduced lunch. She has a lunch. She has a history of reduced lunch. He has a average success and low history of high success and history of high success and history of average success high participation during math participation during math and average participation high participation during math lessons. He also enjoys riding lessons. She also plays on a lessons. She also loves during math lessons. He also loves comic books. his bike. softball team. animals. Strategy G Strategy H 1. 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