**CODE: 191** 

# **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** Jackie (she/they) Mateo (he/him) Valentina (she/her) Mason (he/him) Valentina is a Latina girl who Jackie is a white transgender Mateo is a Latino boy who Mason is a white boy who girl who speaks English as speaks Spanish as his first speaks English as her first speaks English as his first her first language. She has no language. He is an EL student language. She has an IEP for language. He is on an IEP for identified disabilities. She who speaks English at an speech impairment severe ADHD. He receives receives free or reduced intermediate level. He has no (stuttering). She does not free or reduced lunch. He has lunch. She has a history of identified disabilities. He receive free or reduced lunch. a history of high success and average success and low receives free or reduced She has a history of average low participation during math participation during math lunch. He has a history of high success and low participation lessons. He also enjoys lessons. She also loves success and average during math lessons. She also singing. animals. participation during math enjoys spending time in lessons. He also likes to play nature. the guitar. 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. 25 + 2Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 25 40 + 3 = 43 25 + 2550 Oliver (he/him) Angel (she/her) Adriel (he/him) Alejandro (he/him) Oliver is a white boy who Angel is a Black girl who Adriel is an Indigenous boy Aleiandro is a Latino boy who speaks English as his first speaks English as her first who speaks English as his speaks Spanish as his first language. He has no language. She has no first language. He has no language. He is an EL student identified disabilities, and he identified disabilities, and she identified disabilities, and he who speaks English at a does not receive free or does not receive free or receives free or reduced beginner level. He has no reduced lunch. He has a reduced lunch. She has a lunch. He has a history of identified disabilities. He history of high success and history of low success and low average success and low receives free or reduced high participation during math participation during math participation during math lunch. He has a history of low lessons. He also enjoys riding lessons. She also enjoys lessons. He also loves to play success and low participation his bike. making origami. soccer. during math lessons. He also loves to play Minecraft. 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

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

#### Carter (he/him) CJ (they/them) Camille (she/her) Grace (she/her) Carter is a Black boy who CJ is a gender fluid white Camille is a white girl who Grace is an Asian girl who speaks English as his first child who speaks English as speaks French as her first speaks English as her first language. She has an IEP for language. He has no their first language. They have language. She is an EL identified disabilities, and he no identified disabilities, and student who speaks English dyslexia. She does not receives free or reduced they do not receive free or at an advanced level. She has receive free or reduced lunch. lunch. He has a history of reduced lunch. They have a no identified disabilities, and She has a history of low she does not receive free or average success and little to history of high success and success and average average participation during no participation during math reduced lunch. She has a participation during math lessons. He also loves to cook math lessons. They also love history of high success and lessons. She also plays and bake. to draw and paint. high participation during math basketball. lessons. She also does karate. 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 Daniela (she/her) Liam (he/him) Ava (she/her) Jada (she/her) Daniela is a Latina girl who Ava is a white girl who speaks Liam is a white boy who Jada is a Black girl who speaks English as her first English as her first language. speaks English as his first speaks English as her first language. She has no She has no identified language. He has no language. She has no identified disabilities, and she disabilities. She receives free identified disabilities, and he identified disabilities, and she does not receive free or or reduced lunch. She has a does not receive free or does not receive free or reduced lunch. She has a history of low success and low reduced lunch. She has a reduced lunch. He has a history of average success participation during math history of average success history of high success and and low participation during lessons. She also loves and average participation high participation during math during math lessons. He also lessons. She also plays on a math lessons. She also loves gardening. to dance. loves comic books. softball team. 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