**CODE: 173** 

# **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** CJ (they/them) Liam (he/him) Valentina (she/her) Daniela (she/her) CJ is a gender fluid white Valentina is a Latina girl who Liam is a white boy who Daniela is a Latina girl who child who speaks English as speaks English as his first speaks English as her first speaks English as her first their first language. They have language. He has no language. She has an IEP for language. She has no no identified disabilities, and identified disabilities, and he speech impairment identified disabilities, and she they do not receive free or does not receive free or (stuttering). She does not does not receive free or reduced lunch. They have a reduced lunch. He has a receive free or reduced lunch. reduced lunch. She has a history of high success and history of average success She has a history of average history of average success average participation during and average participation success and low participation and low participation during math lessons. They also love during math lessons. He also during math lessons. She also math lessons. She also loves to draw and paint. loves comic books. enjoys spending time in to dance. nature. 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. Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 40 + 3 = 4325 + 2550 Jackie (she/they) Mason (he/him) Carter (he/him) Mateo (he/him) Jackie is a white transgender Mason is a white boy who Carter is a Black boy who Mateo is a Latino boy who girl who speaks English as speaks English as his first speaks English as his first speaks Spanish as his first her first language. She has no language. He is on an IEP for language. He has no language. He is an EL student identified disabilities. She severe ADHD. He receives identified disabilities, and he who speaks English at an receives free or reduced free or reduced lunch. He has receives free or reduced intermediate level. He has no lunch. She has a history of a history of high success and lunch. He has a history of identified disabilities. He average success and low low participation during math average success and little to receives free or reduced participation during math lessons. He also enjoys no participation during math lunch. He has a history of high lessons. She also loves singing. lessons. He also loves to cook success and average animals. and bake. participation during math lessons. He also likes to play the guitar. 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.

Then I only needed to add 25 more, so I made another jump

That makes 25.

and got 50.

#### Camille (she/her) Adriel (he/him) Ava (she/her) Grace (she/her) Camille is a white girl who Ava is a white girl who speaks Adriel is an Indigenous boy Grace is an Asian girl who speaks French as her first English as her first language. who speaks English as his speaks English as her first She has no identified language. She has an IEP for language. She is an EL first language. He has no student who speaks English disabilities. She receives free identified disabilities, and he dyslexia. She does not at an advanced level. She has or reduced lunch. She has a receives free or reduced receive free or reduced lunch. no identified disabilities, and history of low success and low lunch. He has a history of She has a history of low she does not receive free or participation during math average success and low success and average lessons. She also loves reduced lunch. She has a participation during math participation during math history of high success and lessons. He also loves to play !lessons. She also plays gardening. high participation during math basketball. soccer. lessons. She also does karate. 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 Alejandro (he/him) Oliver (he/him) Jada (she/her) Angel (she/her) Aleiandro is a Latino boy who Oliver is a white boy who Jada is a Black girl who Angel is a Black girl who speaks Spanish as his first speaks English as his first speaks English as her first speaks English as her first language. He is an EL student language. He has no language. She has no language. She has no identified disabilities, and he identified disabilities, and she identified disabilities, and she who speaks English at a beginner level. He has no does not receive free or does not receive free or does not receive free or identified disabilities. He reduced lunch. She has a reduced lunch. She has a reduced lunch. He has a receives free or reduced history of high success and history of low success and low history of high success and lunch. He has a history of low high participation during math high participation during math participation during math success and low participation lessons. He also enjoys riding lessons. She also plays on a lessons. She also enjoys during math lessons. He also his bike. softball team. making origami. loves to play Minecraft. Strategy G Strategy H 1. 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