CODE: 10

# **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 Oliver (he/him) Jada (she/her) Liam (he/him) Daniela (she/her) Oliver is a white boy who Jada is a Black girl who Liam is a white boy who Daniela is a Latina girl who speaks English as his first speaks English as her first speaks English as his first speaks English as her first language. He has no language. She has no language. He has no language. She has no identified disabilities, and he identified disabilities, and she identified disabilities, and he identified disabilities, and she does not receive free or reduced lunch. He has a reduced lunch. She has a reduced lunch. He has a reduced lunch. She has a history of high success and history of high success and history of average success history of average success high participation during math high participation during math and average participation and low participation during lessons. He also enjoys riding !lessons. She also plays on a during math lessons. He also math lessons. She also loves his bike. softball team. loves comic books. to dance. 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. 40 25 40 + 3 = 4325 + 2550 Mateo (he/him) Camille (she/her) Adriel (he/him) Valentina (she/her) Mateo is a Latino boy who Camille is a white girl who Adriel is an Indigenous boy Valentina is a Latina girl who speaks Spanish as his first speaks French as her first who speaks English as his speaks English as her first language. He is an EL student language. She is an EL first language. He has no language. She has an IEP for who speaks English at an student who speaks English identified disabilities, and he speech impairment intermediate level. He has no at an advanced level. She has receives free or reduced (stuttering). She does not identified disabilities. He no identified disabilities, and lunch. He has a history of receive free or reduced lunch. receives free or reduced she does not receive free or average success and low She has a history of average lunch. He has a history of high reduced lunch. She has a participation during math success and low participation success and average history of high success and lessons. He also loves to play during math lessons. She also enjoys spending time in participation during math high participation during math soccer. lessons. He also likes to play lessons. She also does nature. the guitar. karate. 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.

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

That makes 25.

and got 50.

#### Alejandro (he/him) Angel (she/her) Ava (she/her) Jackie (she/they) Angel is a Black girl who Ava is a white girl who speaks Jackie is a white transgender Alejandro is a Latino boy who speaks English as her first English as her first language. girl who speaks English as speaks Spanish as his first language. She has no She has no identified her first language. She has no language. He is an EL student identified disabilities. She identified disabilities, and she disabilities. She receives free who speaks English at a does not receive free or or reduced lunch. She has a receives free or reduced beginner level. He has no reduced lunch. She has a history of low success and low lunch. She has a history of identified disabilities. He receives free or reduced history of low success and low participation during math average success and low lessons. She also loves lunch. He has a history of low participation during math participation during math lessons. She also enjoys lessons. She also loves success and low participation gardening. animals. making origami. during math lessons. He also loves to play Minecraft. 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. Mason (he/him) Grace (she/her) CJ (they/them) Carter (he/him) CJ is a gender fluid white Mason is a white boy who Grace is an Asian girl who Carter is a Black boy who speaks English as his first speaks English as her first child who speaks English as speaks English as his first language. He is on an IEP for language. She has an IEP for their first language. They have language. He has no severe ADHD. He receives dyslexia. She does not no identified disabilities, and identified disabilities, and he receives free or reduced free or reduced lunch. He has receive free or reduced lunch. they do not receive free or a history of high success and She has a history of low reduced lunch. They have a lunch. He has a history of history of high success and low participation during math success and average average success and little to average participation during no participation during math lessons. He also enjoys participation during math singing. lessons. She also plays math lessons. They also love lessons. He also loves to cook to draw and paint. basketball. and bake. 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