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Noah's ark math problem

Algebra wrapped the resolution systems through the graphs today and switched to substitution. I found a wonderful intro activity over at Fawn's 180 blog. At first, we didn't give the students enough time to chew the problem. But for the rest of the day I gave them 20-25 minutes to work on it in small groups. A lot of students were stumped, but no one was unable to have at least a start on the issue. I heard a lot of satisfying sighs of relief today after the students solved the problem. Over time the students came up with a lot of different solutions, we challenged all of this and it was a great activity developing reasoning. Here are two examples of student work Several students started by assigning values to certain animals and set up an ISH approach equation system. It was fun hearing their reasoning of how they came to a solution. The second example lends itself to a smooth transition for a conversation about substitution. Have a great day today! See all the danburf posts I feel so accomplished! is what I heard a student say after doing Noah's Ark solving activity problems in my class today. I also heard you'll really want math class today! It was so hard, but so much fun! I gave them the issue of Noah's Ark (thanks Fawn)! I followed Fawn's suggestions for problem solving because she's the expert. Give them all your own copy of the problem. (And a sheet of animals to cut if they wanted it). Noah's Ark PS Let them read it silently Let one of them read it aloud while other students read along in silence. Let them work in silence for a few minutes. Let them work together. Discuss solutions. While working in silence, many students came up with a solution. However, once they started working with others, they realized that their solutions could not be correct. I liked explaining their colleagues' solutions, and their colleagues were saying, Oh, but then you had too many zebras. and I was hearing, oh... My favorite had to be but what is a kangaroo? What are you? Several students asked for another copy because they wrote all over theirs and wanted to start again. Giant Whiteboards are great for group work and presentation. Let's work together. They liked animal cut-outs. Rebuilding the problem. I can't stop until I figure it out! Some students let animals match animal values. Most students had to work together to find the right solution. A group of my students decided to assign point values to some of the animals, and variables to others. This was a modified version of the substitution, and so interesting for me to see. I liked the way they modeled the problem fit their level of understanding. Their minds work in fascinating ways! Student solutions: Here the cutting of animals is used to visually show the substitution. This This useful for students who have not been convinced of the algebraic solution. Noah's Ark Ps Issue Statement Mr. Noah would like his ark to stay perfectly level in the water. You need to figure out how many seals(6) are balanced with 3 zebras. Chart process used to solve the problem:E=Elephant, Z=Zebra, K=Kangaroo, S=Seal and B=BearEBSS=ZZZZZZZZ EKKSSSS=BBBB ZZZZZ=BB? B=ZZZ E=BBUsing this chart you know that an elephant equals two bears or six zebras, and a bear equals three zebras. Then we changed the first three equations into; BSS=KKKKSSS=BB ZZZ=? After spending a very long time staring at these equations I realized that when you put the first two equations side by side everything makes sense #Sherlock HolmesBB = KKSSS BSS = KKI saw that when four seals drop from both sides of the top equation the answer is the bottom equation. That says if you drop four seals from a bear, you have two more, you add them, and you get that one bear equals six seals. A bear equals three zebras and if you look at the equation in the middle column that says ZZZ =? Well, that question mark equals six seals. After I got six seals as my answer I tried connecting it into my original equations and they all got to be correct. To test you I won't put down my verified work instead I'll have to figure it out and it's not because I'm lazy. I am 100% sure that the only answer is six, because each seal weighs the same amount. You couldn't have a fat seal that weighed the same amount as two combined seals, changing the number to five. EvaluationM enjoyed this problem because it took me more than a day and also made me feel kind of stupid and smart at the same time when I realized that the answer was right on the page. Page 2 Page 3The Scarlet Ibis Essay Paragraph OneRyan McClintic Narrator is ashamed of the Doodle, so try to change it. For example, the narrator is so ashamed that he tries to kill the Doodle. It was bad enough having an invalid brother, but one that possibly wasn't all there was unbearable, so I started making plans to kill him by choking him with a pillow. (Hurst, page two). There's a chance Doodle had some mental problems, so the narrator plans to kill him, because he doesn't want to have a different brother. He'll change his brother from alive to dead just because he's ashamed. The narrator doesn't like that Doodle can't walk so it makes him learn. When Doodle was five, I was ashamed to have a brother who couldn't walk, so I set out to teach him. (Hurst, page two). The narrator is so ashamed of his brother that he is willing to devote most of his free time to teaching the Doodle to walk. Also, he's willing to go to great lengths just because his pride won't let him have a crippled brother. Even after all the efforts he makes in changing the Doodle, he finally has to face the fact that he can't get everything he wants. Page 4 Synonyms Fresh-fishFreshiePhreshmanNinth Student Kid Class Page 5 Problem Statement You have an ark that is divided down in the middle. You have two sides, the one on the left is called the wild team, the one on the right is called the zoo team. There are five decks that balance perfectly, apart from the third deck. Your mission is to figure out how many seals (plus a bear) are needed to balance six zebras. In Deck Five I notice that an elephant weight weighs up to two bears. In Deck Four I notice that a bear weighs up to three zebras. When I got to deck three, I already knew that a bear weighs up to three zebras, so all I had to do was pass three of the six zebras. Now I just need to fine out how many seals weight as much as three zebras. When we got to deck two, we cut the elephant on to the wild team and two bears from the zoo team. This is where I got stuck because there were only two bears left on the zoo team and I had two kangaroos and four paws seals on the wild team. Then I went to Deck One to get more information. In deck one we cut the elephant from the wild team and the six zebras from the team's zoo. This is because in Deck Five it is said that an elephant weight as much as two bears and then in deck four it is said that a bear weighs as much as three zebras. I also got stuck in deck one because there was a bear and two seals on the wild team and only two kangaroos on the zoo team. My first guess to this POW was that there should have been two seals on deck three, where the question mark is located. I soon learned that this hypothesis was completely incorrect, because it means that once you cut an elephant from the wild team on deck two and two bears from the zoo team, than you will be left with two kangaroos and four seals on the wild team of deck two, while having only two the team zoo. If you do this than you will see that you will have to say that two kangaroos weight just like a bear and that four seals also weight just like a bear. This is incorrect because if you say that four seals equal the same weight as a bear than anything on deck three will be false (as shown in the picture below) After finding out that two seals was not the answer, I just started juggling/playing around with the animals to see if I could see a pattern and solve this problem, however, that was a full waist of time because it didn't take me anywhere. (picture below) (***) Sorry for writing my bad hand. I was very frustrated, that's all (***) After talking to Lucy (student) about this POW she advised me that if I give the animals weigh numbers, it will make it easier to solve. (This is all that helped me with. Taking Lucy's advice I started giving the animals weighing numbers. This is what I came up with, the hardest from the highest to the one based on common sense (elephant) -----> 12pounds (I know that an elephant is not 12 pounds in real life. ReasonB (bear) -----> 6pounds I did this was because using small numbers will definitelyK (cangur) -----> 4pounds make it easier. Z (zebra) -----> 2poundsS (seal) -----> 1 poundNow all I had to do was connect in animal numbers. Answer - (6 seals = 3 zebras) (6 seals + 1Bear = 6 zebras) Evaluation I really liked working with this problem because it was very difficult to solve and, in my opinion, I think this problem is by far the most difficult problem that Jocelyn has given us. I think this problem was useful because in this issue you absolutely had to make a list of everything that could help solve this problem. To make this problem more difficult the only thing I would do is add another species to the problem, however, I think this problem is already hard so it is. Is.