Problem of the Month: “Party Time”

Anna Yates School

Grade 6, Anthony Rodgers

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00:00 All right. I want your desktops clear, because we’re going to solve the Problem of the Month.

00:03 This problem of the month is called “Party Time.”

00:07 On your tabletops there are manipulatives, pattern blocks. You can use them as counters.

00:14 So go ahead, why don’t you just start looking at your manipulatives now.

00:18 I know you don’t like playing with them, but go ahead and look at them now.

00:33 All right. Do you think you’re ready to go ahead, or do you need to sit?

00:41 Wait, let me see.

00:43 Where?

00:53 I’m going to give you your sheets. Do not start, just keep looking at the manipulatives but do not start the problem.

01:08 Hear me, clap twice.

01:09 All right, so go ahead and leave them alone for right now. Let’s look at your problem of the month. Make sure you’re sharing with a neighbor.

01:18 So you’re working with a person that sits perpendicular to you.

01:23 Right? So make sure both of you are reading your paper.

01:27 Actually, Tania and Ronesha, all three of you I want you together. Keep the two sheets, but I want you to do your work on one sheet. Okay?

01:34 All right. So make sure you’re sharing with the person that sits perpendicular to you. And can both of you read it?

01:42 You can read upside down? All right.

01:45 All right. The name of this problem is.. what is it?

01:48 Party time!

01:49 Party time. Level A. Cindi had a party, she invited ..

01:54 Two guests.

01:55 She invited…?

01:56 Two guests!

01:57 Her guests each invited…

01:59 Four guests!

02:00 And then those guests each invited…

02:02 Three guests!

02:03 How many people were at Cindy's party? Explain, explain how you determined your solution.

02:10 So when you write out your explanations, you use numbers, what else?

02:16 words!

02:17 Words. And…

02:20 Pictures?

02:21 And pictures. Is that right?

02:22 Yes.

02:23 All right. So I gave you those manipulatives so you can look at it, right, from a different perspective.

02:28 Go ahead and get started. Make sure you work together and explain your reasoning.

02:35 Okay. Two plus 8 equals 10. Okay. First, I got that because she invited two guests and her two guests invited each four guests. So four plus four equals 8, and then two plus eight equals 10.

02:47 And so those 10 guests each invited 3 guests, so 10 times 3 is 30, 30 times 3 is… hold on, wait. No.

02:58 No.

02:59 30… plus 10…

03:01 Because two plus 8 equals 10, and 10 of her guests, those 10 people …

03:08 10 plus..

03:11 3,6,9,10!

03:12 Yeah, I got 16. And then plus her, is 17.

03:15 Because, she had two guests and her… each guest invited four, right? So….

03:28 Four…

03:30 Invited four, and then those four guests…

03:31 So this is Cindi, right? And she invited..

03:33 Each of them invited three?

03:35 Two guests? Dang. That's not 17, then.

03:38 No, no, because look. Shouldn't we count down for this? She invited four, and then she invited three? So shouldn't we go 2,1?

03:44 Um, no. Because she each, she invited two guests. Two of her guests invited four. And then all four… okay.

03:53 Since there's, there's 8 guests, that her first two guests invited.

03:59 Each of them invited three. So that means each of them would invite 3. So it would be 3 times 8.

04:07 Plus… plus… 3 times 8 plus 3, I think. And 3 times 8 equals 24. So it would be 27. I don't get that.

04:22 I know.

04:23 So you got to add those people, plus all of these people

04:26 So you have 22 here? Wait. Can you also use the manipulatives to demonstrate that?

04:32 So can you show me… What would represent Cindi?

04:37 Her guests each invited four guests so…

04:38 So the hexagon is Cindy,

04:39 Yeah.

04:40 And then…

04:41 And then they invited three.

04:43 All right. And Cindi did what?

04:45 She invited four people.

04:47 She did what? How many guests did she invite

04:49 She had invited… two.

04:51 All right, so where's the model of the two guests?

04:54 Right here.

04:55 So those are the model of the two guests?

04:57 Yes.

04:59 Okay.

05:03 Okay. So now…

05:07 So these, two guests.

05:09 So, like three, and then these three… that's one person.

05:20 This is one.

05:31 Ooh! This only has my people.

05:38 Another one that invited another four…and those four people invited three.

05:46 Three.

05:50 Okay, and then ….

05:52 (Counting) 18.

05:59 Okay, so Cindi… where's Cindi again? And she invited two guests. And then they did what?

06:08 four.

06:09 And did those four guests invite anyone?

06:11 Yeah.

06:12 How many people did they invite?

06:14 three. Seventeen.

06:16 So work that out together.

06:18 So that was 18.

06:27 Yeah! 1,2,3,4,5,6,7,8,9.

06:31 Okay, so, because this was two of her guests. Each one of them invited four people. Four.

06:41 And those people each invited 3. Three.

06:54 Okay, so let's look at your model here. Where's Cindi?

06:58 She invited… how many guests?

07:00 Two.

07:01 So those two people just came, right? With Cindi.

07:03 Cindi invited how many?

07:05 Two.

07:06 And those two invited how many.

07:07 Four.

07:09 Four each.

07:10 And then those four guests invited how many?

07:12 Three!

07:15 So talk about your model. I like what you have so far. Talk about it.

07:21 3,6,9,12…15, 18.

07:26 Okay, let's see what you have here. Where's Cindi again? And where are her two guests.

07:35 This? We don't need.

07:37 She had 35 guests.

07:44 You don't count the circles here, because those are already up here.

07:47 35.

07:48 Yeah. So are we gonna write on your paper or mine?

07:51 Yours.

07:53 Invited…

07:56 Three guests.

08:02 … four guests.

08:13 …this guy, with three friends.

08:17 And then each one of the four… each one of her guests invited three more guests

08:26 I did this problem for a long time!

08:36 Plus 16.

08:50 Just do the same thing… just do three on each one.

08:55 24.

08:58 Mathematical, with number sentences? So one thing is maybe you can write the mathematics here…

09:04 That's what we were gonna do,

(end caption 09:08)

09:16 Yeah! 35!

09:18 What? 35?

09:19 Yeah!

09:20 I said 34.

09:22 It's 34, but when you add...

09:23 I know. I added Cindi. I got 34.

09:28 I got 35.

09:35 I counted that twice.

09:41 I got 32. Wait.

09:43 Just count by 3's.

09:45 Oh yeah, I got 35.

09:48 Cindi… two, this is Cindi. And she invited two guests. And those two guests invited four guests each. And four guests invited 3 people.

10:06 So 34 people at a party.

10:10 Cindi invited two guests.

10:13 So, we counted these… so since there's 8 of them, and we were counting by 3's, so that equals 8 times 3 equals 24, and then counted these, and they were 11.

10:28 And, so…it would be 24 plus 11.

10:35 And that equals 35. So there's 35 guests at the party.

10:48 So that's all we did.

10:57 We could write how we did it.

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00:00 you need two of these counters out…all together

00:03 The maximum number of …

00:06 ¼, ¼, ½.

00:07 And how much is in a fourth?

00:09 32, so, uh, 8.

00:11 Okay. So these are the boys here? What's this group here?

00:16 That group? The boys is right here.

00:20 And these are short hair and long hair.

00:22 Okay.

00:26 So if there were 32 guests, what is the maximum … so what's the maximum number of girls who could have short red hair?

00:35 Have you discussed that yet?

00:36 No.

00:38 So based on, and I like what you have here. Based on these numbers, these are all the boys, you said, right? So what are these two groups here?

00:45 This is the short hair and this is long hair.

00:47 Right. So these are girls with short hair, and these are girls with what?

00:53 Long.

00:54 Oh! I get it!

00:55 So you need to talk about a number.

01:01 With B? We don't get this.

01:04 So, ½ is 25,

01:09 All right, well let's read on! Read it aloud, please.

01:12 At Lesley's party, ½ of the people had long hair. ½ of the people at the party were boys. ¼ of the girls had short blonde hair. And none of the boys had long hair.

01:24 If there were 32 guests, what is the maximum number of guests who could have…

01:30 Short red hair? Well, what's the total amount of guests?

01:34 32.

01:35 All right. So half of that group was boys, is that right? Half of that group is boys. What number is that?

01:43 One fourth of them had.

01:45 Long hair.

01:46 Can you write a little label on that ¼, so that I know what that ¼ means? Because sometimes I get confused about what all these fractions mean.

01:56 And..

01:59 So that's one fourth of the people at the party?

02:02 Yeah. No. And then this part, that's for the girls that had short blonde hair.

02:10 Short blonde hair.

02:17 Okay. Okay.

02:22 None of the boys had long hair.

02:28 So why did you add the two fourths together? What are you thinking?

02:32 Um, okay. The label's missing words, but do we still count? ½ of the people at the party who were boys. No, wait!

02:45 One half of the people at the party were boys.

02:49 And then….we're going to add to that for the girls. So maybe we could add that in for the problem.

02:55 Wait. It say, none of the boys had long hair. And it says that Lesley… and it says girls with the one-fourth.

03:05 So why don't you, in numbers, see if you can figure out what this one fourth is.

03:13 How many people had long hair? One fourth of what?

03:16 How many people were at the party?

03:19 32.

03:20 So what's one fourth of 32?

03:27 Nine.

03:28 I'm not commenting. Figure it out. You guys know enough to answer the question.

03:33 So… this is 8. That is 8. And, ½ of 32 is 16. Which is 16…

03:41 16, right there.

03:42 So I don't understand how you got 4,4, 8. And 18.

03:47 Okay.

03:50 And 8, and 16!

03:51 Okay. 8, 8, and 16.

03:55 So, the red hair is 8? Or 16?

03:58 The red hair is out of the question.

04:00 It's 8.

04:01 Red hair is out of the question because, like, it says "short red hair."

04:06 "have long hair…"

04:07 So, the red short hair might be referring to the boys.

04:11 Yeah. So. "None of the boys have long hair." So… so it's 16.

04:18 So it's 16. Wait, is that 16? Or is this with 8?

04:22 One half of…. 16.

04:25 This is the long hair. It's all girls, that's 8. So is this 16, or 8?

04:30 That one is… that one's 16. Because we already have our 8 right there.

04:41 The problem said at Lesley's party, one fourth of the people have long hair. One half of the people at the party were boys. And half of 32 is 16, and one fourth of 32 is 8.

04:57 And it's two one-fourth's, so it's 8, 8.

05:00 So that all equals …32. For the whole total.

05:05 How about people with short hair? That's one fourth, that's 8, and those are all girls, because none of the boys have long hair.

05:15 And the one-fourth of girls, wait. One fourth of people who had short blonde hair, is 16. And the people who had long hair is 8. So all together, that equals 32.

05:27 We just figured out the answer to the question.

05:31 Second page. So we're going to move on to the next one. We're at level C.

05:37 We're at Level C now.

05:40 "Mia, Jake, Barbara, Carol, Ford and Jeff are going to a costume party. Figure out.."

05:46 Because… we added at first, but then we learned that we had to multiply. So yeah, we got 24. But we still don't know how they got 35.

05:56 So we're gonna try to figure out why they got 35.

06:02 We're trying to picture it out. See… so we can imagine it, so it'll be more easier for us.

06:09 Yeah.

06:11 It says, “one fourth of the people have long hair.” But then, it says “none of the boys have long hair.” You get it?

06:20 Yes.

06:21 But it says, it doesn’t say boy or girl, it says “people.” But what kind of people!

06:26 I don’t know, different kind of people.

06:28 Then it says, “one half of the boys had…at the party were boys.” Okay, so one half.

06:35 But these don’t have long hair. These have short hair. Okay, short hair.

06:39 Oh! It’s ¾. Because look. I think this is true. You’re supposed to add one, uh, one half and one fourth.

06:54 Just write this in your notebook or something, man.

07:00 Because they both have short hair. Right?

07:07 All right. It’s ½. At ¼. Uh, 25, and 50.

07:29 That’s um…

07:30 75! Yeah.

07:34 So we have short hair, not long hair, because it doesn’t say who has long hair.

07:38 So that’s ¾.

07:39 Yeah!

07:43 Then I divided 16 by two, which equals 8, then I divided 8 by two, which equals 4.

07:51 Short hair…

07:56 Four girls have short red hair.

07:59 The boys... and the girls.

08:10 There.

08:15 “Mia, Jake, Carol, Barbara… Ford and Jeff. Are all going to a costume party. Figure out which person is wearing what costume and when they arrived.”

08:35 I did this before!

08:36 Okay! So it should be easy!

08:39 Well, I don't remember the…

08:43 "The person that arrived fourth was wearing bath suits." Fourth, fourth. Hold on, I've got to read that again. That's confusing.

08:52 So you figured out the number of boys, the number of girls, we've figured out the number of kids with long hair,

08:59 The part I'm struggling with is how many have red hair.

09:03 Hmmm!

09:11 Think about it.

09:14 Okay.

09:18 "Short red hair." Oh! So what we need to.. okay. One fourth have short blonde hair.

09:27 None of the boys have long hair.

09:35 So one fourth of …

09:38 We can do ¼, that would be the long hair. The long…the long hair.

09:53 And one fourth of the girls had short …

09:59 And ¼ plus ¼ once again equals 2/4, plus 2/4, equals 4/4, equals one whole.

10:09 And then…

10:12 That's the answer, just one whole.

10:13 And then 50%... and then, since,

10:17 50 divided ….

10:20 I said 50 divided.

10:22 You had a division sign!

10:27 Barbara was the… oh! She was wearing the bathing suit.

10:32 She was last to arrive.

10:33 That's not fourth.

10:38 I appreciate you for taking the time and helping us understand questions when we don't get it, and having patience. And a wonderful teacher.

10:47 Thank you. Tania.

10:49 I appreciate you for taking the time out of your day to teach us so we can go to college and get a better education.

10:55 Thank you. Faviola?

10:56 I appreciate you for being nice to us, and, yes.

11:00 Thank you.

11:03 I appreciate you for being a nice teacher and teaching us, even though we have trouble.

11:09 Nice and loud, please, nice and loud.

11:14 All right, thank you. China.

11:15 I appreciate you for being my math teacher, because you have patience to teach us.

11:23 All right.

11:25 I appreciate you for teaching… basically teaching us life, 'cause math is life.

11:33 And I appreciate you for helping me, when I need help, and … for, yeah.

11:45 I appreciate you for helping us with math every day, for coming here, using your time to help us understand these problems that we need help with. So we can learn.

11:55 I appreciate you for having the time to teach us, instead of going somewhere else.

12:01 All right. Arianna.

12:03 I appreciate you for being a good teacher, helping us when we have problems, and for being also a funny teacher, because if you weren't funny then it would be, like, a boring class.

12:14 I appreciate you for being nice, and helpful,

12:19 Deonte.

12:20 I appreciate you, uh, I appreciate you for, I appreciate you for being funny, and I appreciate you for being hard on us so we can go to college.

12:34 And I appreciate you for bringing the camera people in here. So we get on TV.

12:40 All right.

12:41 I appreciate you for being my math and science teacher, and wasting a morning for us.

12:47 Wasting?

12:48 Victor.

12:49 I appreciate you for coming every day, and teaching us, teaching us different stuff every day, well sometimes.

12:58 All right, thank you everyone.