

Problem of the Month: "Party Time"

Anna Yates School

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### **Yates\_POM-Gr5Part1**

00:07 All right, so let's review our group goals today. And then we're going to get started. Quickly, class.

00:16 Show your work! Explain your thinking! Work as a team! Cooperate! Everyone participates! Voice level 6 inches! Voice level 6 inches. 6 inches voice level.

00:33 Okay, so let's remember to keep our voices down, but we want you to be conscious of speaking clearly and explain your thinking in a way that we can hear you,

00:44 But not too loud, where we're disturbing our neighbors, okay?

00:48 So we're going to start with the problem of the month called Party time. And you have the paper in front of you, so we're going to read together the instructions.

00:58 You should have a set of ... counters that are coming around for everyone to use.

01:05 So we're going to start with, who likes to have parties in our class?

01:10 Oh, gee. All right, so that's the majority. So we're going to solve a problem that is about having a party. Inviting people to a party.

01:21 So we're going to solve this problem today. Who would like to be our party host?

01:28 No "oo's." Just a quiet hand, thank you. Let's see. Party host. Where's our equity sticks?

01:37 Because I'm going to get in trouble. Okay, pull one, quickly.

01:44 Number 6?

01:45 All right. Who's number 6? Come forward. Come on.

01:50 And I need one more. Two more.

01:58 28...

02:01 28's not here. Saliya. Got everything?

02:08 5 not here.

02:11 So we're going to invite three people. This is our first. Come up front.

02:17 13.

02:19 13 here. All right, good.

02:31 You may not need your paper.

02:32 So! We have three guests at our party. Would you say your names?

02:38 My name is Revi,

02:41 My name's Eric

02:42 My name's Dionna.

02:44 So how many people are at our party?

02:45 3!

02:48 Wow.

02:54 Suppose each of our friends phone two people to come to the party. They're going to call two people to come to the party.

03:02 How many will there be at the party? Quiet hands. Max.

03:09 Six people.

03:11 Six people all together?

03:12 No, wait, no. Because they each invited two friends, that would be... 9.

03:19 Suppose each of our friends up here invited two people to come to the party. How many people would be at the party all together, Max? Let him think! Give him a minute.

03:38 Do you want to use your counters to help you figure it out? Your counters in front of you. You want to use those to help you in any way?

03:45 I already know it.

03:48 what'd you say? Did you understand the question? Do you want me to repeat it?

03:54 I made a mistake.

03:57 Anyone else. So Max, do you want to try it, or what? Do you want to call on someone to support you? Call somebody.

04:11 All right.

04:14 I'd say—can you repeat the question?

04:19 I couldn't hear it.

04:20 Each of your friends, they phone two more people. How many people are at the party all together now.

04:32 There would be ...

04:40 You can show your work with your markers, or with your counters.

04:43 12 people!

04:44 12 people? Look around. I see some disagreement.

04:50 8?

04:51 I see..how many did I say, class?

04:56 Two!

04:58 So if each invited three people, the answer would be different.

05:01 But the question is, each one of our guests, that's in front of the class, invited two people. How many are at the party all together?

05:15 9.

05:19 Are you showing your work?

05:23 You guys agree?

05:25 That's the same as Max!

05:26 Did he say 9?

05:27 Yes!

05:28 I didn't hear him say 9. Is that correct?

05:30 No

05:31 Yes.

05:32 No!

05:33 Yes!

05:34 So why don't you invite two people. Have them come up.

05:39 Each one of you. Let's act it out!

05:41 So each one of you, will invite, call two people. Sh. Okay.

06:20 So how many people do we have all together?

06:23 9!

06:24 Let's count again. Count your people up there.

06:32 Nine!

06:37 So Max. What do you think? What are you thinking, Max?

06:44 I said, 9.

06:46 Yes! How many were not sure about 9?

06:52 And what helped you be more sure about the number of people that were at the party. Can you explain your thinking?

06:57 Those people are disagreeing with me!

06:59 Perhaps they needed to see it in front of them.

07:02 I did it twice!

07:03 Okay. Yes, Cynthia.

07:07 What I didn't get was if it was including Cindi, or whatever her name was, Cindi?

07:17 I didn't know if it was including Cindi, so then I didn't agree with Max because of that.

07:23 Anyone else? Your thinking. All right.

07:25 Um, first I got 5, and then.

07:33 That means yes, they agree. The snaps.

07:35 Then it was like, it didn't work, when you was asking Brandon, when you was asking Brandon, you said each.

07:46 So then I counted three people each inviting two people.

07:51 What did you total all together?

07:54 What?

07:55 How many did you have all together?

07:56 9.

07:57 Okay. Anyone else have any... another way of arriving at this answer, 9, or that have come up with a different answer. Yes.

08:07 Francisco.

08:08 I used my slate, and I drew three circles, because three circles, well, there's one person in each circle first, there would be one person in each circle first that would be the host.

08:28 and then after the hosts all invite two people, so then you add 6 more people, that would equal 9.

08:38 So he needed, he used his slate to visualize, make a model to visualize the people represented in the party.

08:49 And sometimes we need more than one way of seeing it. Like Max, I think figured out in your head.

08:55 Is that, how did you figure it out, Max? I don't want to speak for you. I'll let you speak.

08:59 Well, I just did, because I did, there's three people up there, and each of them invited two people, that would be equivalent, that would add, 6, and 6 plus 3 is 9.

09:17 A little louder, please.

09:18 Max, can you sit up first, please?

09:23 What I did is because there's three people up there, and then you said that each person invites two people to come, and so I know that 6 plus 3 is 9, so I counted that in my head.

09:46 Any more comments.

09:48 How many of you snuck ahead and looked at the other level A? Because I heard you talk about Cindi. There we go! Because she appears on the next page.

09:57 It's a little bit different question than the first prompt that Ms. Wren's been asking.

10:04 So one, two more comments.

10:09 Didn't it say, like, when the party host invites three friends, doesn't that mean, like, him included?

10:16 What do you think?

10:18 Because there's only three people up there. There's supposed to be four, with the party host.

10:23 So are you thinking the same thing?

10:28 Let's read over and make sure we understand the question. All right. Let's read over. Who would like to read the question again?

10:36 Who would like to read the question?

10:42 Who likes to have parties in our class? We are going to solve a problem about inviting friends to a party. Who would like to be our party host?

10:59 The teacher says to the host, let's start by inviting three friends to the party. How many people are at the party?

11:09 Okay, so if you're inviting three people at the party, how many are there?

11:15 4.

11:16 Ah! Four people?

11:24 Did you say something? Anything else. Keep going. Yes.

11:30 No, I'm sorry. Who was next after him? Go ahead, Hebron. Any questions? Any additional information I could add?

11:37 You're after him.

11:39 How I got my answer, I already know that  $2 + 1$  is 3, so I added 3 plus 3 plus 3, which is 9. If everybody invites 2 people.

11:49 Yes.

11:50 Also? The reason I thought it was 10 was, it said, "Suppose each of the friends found two people to come to the party. How many will be at the party all together?"

12:03 I had... so if there was 3 up here and they each invited 2, and then that would make 9, plus the.... Cindi, or the host, then I got 10.

12:17 So anyone agree with Symphony, and have changed your mind, or you still hold on to what you're thinking?

12:25 Anyone else? Max, did you understand what she was saying?

12:31 Someone is the host of the party. That invited other people, right?

12:36 So is that host included when we say how many are at the party all together?

12:43 Yes.

12:44 talk to your neighbor. You guys, take a seat. Talk to your neighbor about that question.

12:51 Cindi had a party, and she invited two guests. So she have two guests. She have two guests. And...

12:59 Take your seats, boys and girls. 5,4,3,2...

13:04 Her guests each invited four guests.

13:06 And 1. Did anyone change their understanding, or their idea... have you changed since we've had this discussion, or since we've talked about it in class?

13:19 Anyone change their position? Yes.

13:21 I had 10, the same as Symphony.

13:24 So you had the same from the beginning, and you didn't change.

13:27 Well, yeah, I did.

13:29 You had 9 at first?

13:30 Mm hmm.

13:31 Okay, good.

**YATESPOM-Gr5Part2**

00:00 So, now, we're going to let you guys go to the next page, where it says Party Time Level A. And we've done the Problem of the Month many times.

00:08 So I want you guys to get in your groups, and first, let's read over it first.

00:14 Let's first read over Level A.

00:18 Everyone, first take two minutes to read level A. Quietly. Quietly. Sh.

00:32 Okay, so you guys know your groups. Quietly get into your groups. Group 1, I need you over there, now, because the camera's here.

00:42 Group 1 go over there, everybody else get into your groups.

00:50 He'll come. Okay. Read it.

01:00 Cindi invited three friends. Three people?

01:04 First, go to your groups. Work in the group. Make sure everybody's on the same page.

01:10 So, let's say each person invites a guest. So each is multiplying by

01:17 Multiplying by 2 and 4. Yeah.

01:23 This is a disaster, over there.

01:28 I know, but those two people invite four people, and four people invite...

01:32 No, it says that she had a party, she invited two guests, her guests each invite four guests, and then those guests each invite three.

01:44 So it's more than 34, because it's including Cindi, and she invited two.

01:49 I know! Watch. (Counting)

02:05 That's more than 34, because she invited two guests, including herself.

02:13 I know! That's including herself. Look. (Counting)

02:29 Each person invites 4 people. Those two people she invited, they each invited 4 people.

02:34 That's a lot of people!

02:35 And those three people, those people each... that's like 15 or 16 people at a party!

02:41 That's like 20!



02:43 That's just like a lot.

02:44 She invites two people, and they each invite four guests, and then those guests each invite..

02:50 So 8 guests have to invite 3 people. Each one of the ..

02:56 No, but it's 6. Because it says "and those guests each invite 3 guests." Each.

03:00 So  $4 + 4$  is 8, so, 8.

03:03 They invited 3.

03:06 That's what I said.

03:08 And 6, like 30 or something.

03:14 That's like beyond... I only invited 16 people to my party.

03:19 1,2,3,4,....

03:22 That's way beyond 16. That is.. whoo! And then THEY,

03:28 She invited... her guests each invited four guests, and then those guests each invited three. It's like double that.

03:39 So she didn't invite them. THEY invited them. Everybody...

03:45 Someboy's going to get shot at this party! Seriously. There's a lot of people.

03:54 Of course!

03:59 We always get shot.

04:01 If I explain to you this way...

04:08 After we work it out on here...

04:12 She invited two guests. Two. 2 plus. Her guests invited 4 people.

04:21 That's like a lot of people in that one little party.

04:25 But they invited one more than I did for my party.

04:28 Because I invited 16. Do you know how many dishes we had?

(end captioning at 04:35)

05:23 Oh, you need to write one more person here.

05:28 I'm saying, right here there's supposed to be one more person.

05:33 Okay, talk to Max about it, then.

05:36 I keep getting lost with the counters.

05:38 I'll help you.

05:39 What do you think about drawing it, do you think that might help?

05:32 Yeah, I think it.

05:44 Okay, so draw on here, so we can see your thinking.

05:45 Draw Cindi first.

05:46 Good. Good thinking.

05:48 That's a lot of people at a party!

05:50 You think? All right. Let's see what Max comes up with.

05:55 Max said somebody would get shot. If you invited 100 people off Myspace and you don't even know them.

06:02 Somebody's gonna get shot.

06:03 All right. How's that connected to this? All right. Let's get back. He said that?

06:09 Yeah.

06:10 All right. Let's stay focused. You said you'd draw it for me? So draw it for me.

06:17 Okay, so.

06:22 Read it again.

06:25 Those are two friends.

06:26 Yeah.

06:28 They got four people.

06:34 Each one of them? Or both of them.

06:36 Can you make a connection so I can see?

06:39 Oh, I see. You have it beautiful.

06:45 Okay. What I did, I put Cindi as herself. And then she says, she invited two people. I made a plus sign, so these two people. And those two people each invited 4 people themselves.

06:59 And then those people, those people, invite 3 people.

07:04 This person invited how many?

07:06 4.

07:07 And this person invited how many?

07:08 Four.

07:09 So this is the 4 for this person? And this is a 4 for this person? Okay, all right.

07:12 But then both 8 people invited 3 people themselves. So that is how I got 35.

07:23 So you have 8. 3 groups.... 8 groups of 3.

07:33 And they represent the people that each one of these invited?

07:36 You have 8 people here?

07:38 Yeah, because it says "Cindi had a party. She invited two guests, which are here."

07:43 Yes.

07:44 Her guests EACH invited four guests. So, 1,2,3,4, 1,2,3,4.

07:49 Okay.

07:50 And those guests EACH invite three guests.

07:54 Yes.

07:56 So each one of those four people invites three people.

07:58 Okay. Is there any way that you can .... Label, or show me what each one of these groups of people represent?

08:05 I know how to get them to be guests, put "G."

08:08 Good idea.

08:12 Do you understand my question?

08:14 Um, no, not really.

08:15 Okay. You explained to me what each of these groups of people represent. But if I looked at this model, is there any way that I can look at and know who these people are?

08:28 No.

08:29 No other way? Well, you put Cindi here. Who are these people?

08:36 The guests.

08:37 Whose guests?

08:38 Cindi's guests.

08:39 Can you label that? Okay, good. Good. Are you starting the poster now?

08:44 Okay, so we're going to make sure you include Max's input when you start the poster.

08:51 How're we coming, Max?

08:52 Oh, good.

08:53 All right. I'm gonna come back.

### **YATES\_POM-Gr5Part3.m4v**

00:00 Cindi is the first guest? Okay.

00:04 She invited 2, which makes it 3.

00:07 5,4, good. What group are you? Group 3? Group 3? 6 inches. All right.

00:18 And then ...those two guests invited 4.

00:28 Where are the two guests that you're talking about? That invited 4? Oh, I see them.

00:33 And where are their guests? Oh, you put "friends," nice! Labels.

00:37 These are their guests?

00:39 Mm hm.

00:40 Okay. Then what happened?

00:42 Then the four guests put three guests.

00:47 Where are they? Where are their three guests?

00:53 Right here.

00:57 1,2,3, yeah. Good. Very clear. I see it. Good. So you have three from each?

01:05 Mm hm.

01:06 All right. So how did you come up with 35?

01:13 I counted them up.

01:15 You counted them... each guest, to total 35?

01:20 Is there another way you could maybe come up with 35 without counting them one by one?

01:31 Mm, I don't know.

01:36 You think?

01:41 Okay. First, let's see for you, Amy.

01:44 Well, what I did...

01:45 Speak out.

01:47 Where are the fourth people? Okay.

01:57 And then they invited three friends.

01:59 I see.

02:01 And they invited three friends.

02:02 Okay. Good. Those are clear, yes. And then he invited these three.

02:09 So the question asks, "How many people were at Cindi's party?"

02:16 35.

02:17 So 35 people were at the party?

02:19 You guys ready for your poster?

02:24 Yes.

02:25 All right. So, when you do your poster I want you to make sure you explain your thinking and all the steps that are on the board.

02:31 As far as the goals for everybody participating, and showing your work and showing your thinking. All right? And definitely cooperate. Good job!

02:42 Love.

02:43 L! O! V! E!

02:45 Raise your hand if your group has started the posters. Good job. How many have finished the poster for level A?

02:52 All right. After you finish the poster for Level A, raise a quiet hand and we're going to go to Level B. All right? Go. Good job, boys and girls, though.

03:04 I wanted to see this very good work put on the poster. Okay? I can't wait to see it. Yes.

03:11 I finally got it. It was confusing because it says, I automatically knew it was Cindi had a party, and then she invited two guests, but then once it got here? Her guests each invited four.

03:24 And so my answer was 17 until I saw "her guests EACH invited four." Then I had to redo it.

03:29 What helped you to understand "her guests each."

03:35 So basically, I drew the guests...

03:38 That's the support. The drawing is very helpful. For me too. I have to draw figures or whatever to visualize, because I'm a visual learner too. I have to see it.

03:51 And that helped you to see it. Did the group help you to go back, or did you—what made you go back and look at it.

03:58 The group, definitely.

03:59 So the group is a good support as well. But, excellent job. You guys ready for your poster?

04:03 We already started on it.

04:05 Great job.

04:07 Cindi. That was one.

04:09 Good! So your modeling helps you to understand it. This is Cindi?

04:15 This is Cindi, right here.

04:17 Sorry.

04:18 Then, she invited two friends. These are the two friends.

04:21 Okay. All right. Good.

04:25 Those two friends invited four guests. So I drew the four guests right here, which is 8.

04:33 So then 8 of those guests invited 3, which is right here.

04:37 Hm.

04:39 And then, then I added it all up. Cindi, that's 1. (counting) 34.

05:10 Well, I had 35.

05:13 Did you include this one? Did you include this one?

05:16 So this is Cindi, you said? These are her two guests?

05:21 Yep.

05:22 And their guests?

05:23 Right here.

05:25 And each one invited how many.

05:27 Um, 35...

05:30 Cindi's guests invited how many?

05:31 Four.

05:32 Four. So there's 1,2,3,4. 1,2,3,4. Right?

05:35 And then each one of her guests, each one of them invited how many?

05:39 Three.

05:45 So you have all the guests included, so perhaps you did make a mistake in adding. You want to try it again?

05:57 Try counting again and see if you come up with... see if you have 35.

06:01 That would be four more.

06:04 Do it again! Show us your thinking.

06:11 So then she invited.... These two people.

06:14 Yes.

06:15 And then after, it says that these two people invited four people, so they're 1,2,3,4. 1,2,3,4.

06:24 And then all those 4 people invited 3 people. So, 1,2,3,1,2,3,1,2,3,1,2,3,1,2,3,1,2,3,1,2,3, and 1,2,3.

06:38 Okay, yes. I see that. So then, what did you do?

06:42 So then I added all of them. (counting) 35.

07:06 So that's how I got a total of 35.

07:09 So how would you write your solution down here?

07:13 Like, um.

07:15 Explain how you determined your solution. How would you write that?

07:20 I would write that I... I would put 35, and then since I counted, and then they invited two friends, so then you could just go, like 3.

07:41 So just write down what you just explained in words. So you might just use this space here, any space you like, you can erase that maybe, put 35 here, and then write in that space.

07:57 Explain, how you determined your solution. Is it beautiful pictures, and very organized party members.

08:08 And I like your tree concept, too.

08:10 I got 35 again!

08:11 Okay! So.

08:14 So these guys are the guests, and that's Cindi.

08:19 So was your discrepancy in the counting? Did you miscount?

08:21 Yeah.

08:22 Okay. So I need you guys, once you write down on this paper, because I like to see your models on here too. I'd like for you to write...



08:31 Explain how you determined your solution. All your different steps that you tried, I want you to explain that too.

08:36 Because that's important, to see how you arrived, how you started, and then how you ended up with 35. All right? Guests. Or, 35 people at the party.

08:49 Thank you. Excuse me.

08:53 Good job, you guys. Is everybody participating?

08:56 Um, Ms. Thorndike came over here and said that they should start off at the B. And we do this.

08:59 Okay, that's perfect.