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| Speaker | Line | Transcript | Time | Comment |
| A | 1 | Okay, so let's start with... Let's start with just making just a few key observations. What do you notice is happening here in our demonstration space? | 00:00 |  |
| B | 2 | Didn't we do this last [crosstalk 00:00:16]. | 00:15 |  |
| C | 3 | Yeah we... | 00:15 |  |
| A | 4 | Mm-hmm (affirmative). Yeah, yeah. | 00:15 |  |
| D | 5 | Yep. | 00:15 |  |
| A | 6 | Yeah. | 00:15 |  |
| B | 7 | So what are we... | 00:15 |  |
| A | 8 | It's gonna go fast. | 00:15 |  |
| E | 9 | The water's bubbling. Big bubbles. The bubbles are rising. | 00:17 |  |
| C | 10 | There's steam forming on the side of the beaker. | 00:27 |  |
| F | 11 | (Laughs). | 00:30 |  |
| A | 12 | How do you know that's steam? | 00:32 |  |
| E | 13 | Because we see it in the shower every morning. | 00:38 |  |
| C | 14 | Uh, I was going to say when you see it. | 00:39 |  |
| E | 15 | That's what I... | 00:39 |  |
| B | 16 | Because it's condensing on the side of the container. | 00:39 |  |
| E | 17 | Are we supposed to be responding like we think our kids will? Or are we just sort of putting ourselves in that [crosstalk 00:00:46]. | 00:41 |  |
| D | 18 | No, no. This is... We are definitely in adult learner mode. | 00:46 |  |
| E | 19 | Oh, okay. Because that's what I see in the shower every morning so I know it's steam (Laughs). | 00:47 |  |
| A | 20 | Okay. So... So steam, and what is steam? | 00:51 |  |
| E | 21 | Is it a water... is it water vapor? | 00:57 |  |
| B | 22 | Water vapor. | 00:58 |  |
| A | 23 | You're saying steam is water vapor? | 01:00 |  |
| B | 24 | I'm not sure about that. | 01:06 |  |
| C | 25 | I think the steam is liquid water. | 01:07 |  |
| G | 26 | Yeah. | 01:08 |  |
| E | 27 | Yeah. | 01:08 |  |
| F | 28 | Yeah, me too. | 01:08 |  |
| G | 29 | Yeah, liquid... Water vapor is something different. | 01:11 |  |
| C | 30 | It was just tiny drops that were condensing. | 01:12 |  |
| F | 31 | Water vapor is a gas. | 01:13 |  |
| C | 32 | Mm-hmm (affirmative), and you can't see that. I learned that this summer. | 01:16 |  |
| F | 33 | Mm-hmm (affirmative). | 01:19 |  |
| B | 34 | I'm going to take back my idea then. | 01:20 |  |
| C | 35 | (Laughs). So... | 01:22 |  |
| F | 36 | I'd say the water is boiling, it's reached boiling... | 01:23 |  |
| A | 37 | So before we go there, we can't see... | 01:26 |  |
| D | 38 | A gas. | 01:29 |  |
| C | 39 | Yes. | 01:29 |  |
| A | 40 | Can't see a gas. So look at these ideas. 1, 2, 3, 4. Which ones do you agree with? Or, which ones do disagree with? Are than any that... | 01:30 |  |
| B | 41 | So you can't see a gas, which is correct. | 01:46 |  |
| A | 42 | Does everybody agree that you can't see a gas? | 01:48 |  |
| E | 43 | Mm-hmm (affirmative). | 01:51 |  |
| F | 44 | Yes. | 01:51 |  |
| A | 45 | What about the other ideas? | 01:55 |  |
| C | 46 | I think water vapor is a gas. | 01:58 |  |
| H | 47 | But, you can see it as the steam is rising. Or you can see it on the edge... the inside of the beaker. So, that would... I wonder. | 02:00 |  |
| A | 48 | So you're saying you can see steam, is that right? | 02:13 |  |
| H | 49 | I am seeing it now. Yes. | 02:16 |  |
| A | 50 | So, you're saying that you're seeing it both in the air and on the side of the beaker? | 02:18 |  |
| E | 51 | [inaudible 00:02:27]. | 02:27 |  |
| F | 52 | No, it kind of comes and goes. | 02:29 |  |
| A | 53 | So the question, the question may be what, what is steam? | 02:31 |  |
| F | 54 | I think steam is... liquid water that is- | 02:37 |  |
| B | 55 | Transitioning. | 02:42 |  |
| F | 56 | -In the process of transitioning into a gas. | 02:43 |  |
| B | 57 | Transitioning into a gas. How bout that? | 02:46 |  |
| A | 58 | Okay. So, one idea is that steam is liquid water and it is liquid water that is transitioning into a gas. | 02:48 |  |
| F | 59 | Mm-hmm (affirmative). So it's intermediate. | 02:59 |  |
| A | 60 | So, it's an intermediate phase? | 03:00 |  |
| F | 61 | Yeah. | 03:01 |  |
| B | 62 | Doing the phase change. Yeah. | 03:01 |  |
| G | 63 | So then, we're not seeing water vapor? Are we just seeing steam? | 03:07 |  |
| A | 64 | Well that's a great question because we've said you can't see a gas. We've said you can see steam. So Alicia, what are you saying? | 03:12 |  |
| G | 65 | Um, I think I'm saying that... The water, the steam or the water that is being evaporated and mixing with the cooler air outside of the container is some form of steam. I don't think it's water vapor because... I'm not supposed to be able to see it. | 03:25 |  |
| H | 66 | But, can't you see a cloud? And doesn't it... Isn't made up of water vapor? | 03:46 |  |
| D | 67 | Yeah but it's been... It's cooled. | 03:50 |  |
| C | 68 | It's, yeah, I think a cloud is liquid water. | 03:52 |  |
| F | 69 | Water is liquid [crosstalk 00:03:57]. | 03:57 |  |
| D | 70 | It's condensing. | 03:57 |  |
| G | 71 | Liquid water. | 03:57 |  |
| H | 72 | So, it's not water vapor? | 03:57 |  |
| F | 73 | Uh-uh (negative). | 03:57 |  |
| H | 74 | Okay. | 03:59 |  |
| G | 75 | That's what I think. | 03:59 |  |
| A | 76 | Okay. So, I just wrote, cloud is water vapor. Deb, you said, “But a cloud is...”. | 04:00 |  |
| C | 77 | I said it was liquid water. It's condensed water vapor. So, it's a... | 04:04 |  |
| A | 78 | So, what is a cloud? | 04:12 |  |
| F | 79 | Water droplets clinging to dust particles. | 04:15 |  |
| E | 80 | To dust particles. | 04:17 |  |
| C | 81 | Particles in the air. | 04:17 |  |
| B | 82 | Dust particles in the air. | 04:17 |  |
| A | 83 | So, is a cloud water vapor? | 04:19 |  |
| F | 84 | No. | 04:21 |  |
| E | 85 | No. | 04:22 |  |
| C | 86 | No. | 04:22 |  |
| A | 87 | Does everybody agree with that? Can I cross this off? | 04:23 |  |
| D | 88 | Pat, you were the one that initially proposed that. What are you thinking? | 04:28 |  |
| H | 89 | No, I agree with Graham. | 04:32 |  |
| A | 90 | So, a cloud is liquid water? | 04:34 |  |
| H | 91 | Mm-hmm (affirmative). | 04:36 |  |