

PD Transcript:

Matter Cycling Lesson 1



- 1 Facilitator: Okay, all right 7th graders, so yesterday we left off where you had compared your
2 models with some other people and then several students came up to the front of the
3 class and put their thing under the Elmo and presented their models to us.
- 4 Participant 1: I forgot my model.
- 5 Facilitator: And so what we want to do is see if we can capture. Remember with the thermal energy
6 we could capture, like what are we initially thinking and agreeing on? We're going to see
7 if we can capture that right here. Some of the similarities, differences, and places where
8 we have some questions, okay? So let's start, let me start with one potential difference;
9 which was did everybody represent the same plant?
- 10 Class: No.
- 11 Facilitator: So, I saw we had a blueberry, an apple-
- 12 Participant 2: I had a banana.
- 13 Participant 3: I had a banana.
- 14 Participant 4: I had a maple tree.
- 15 Facilitator: So, when we're doing models we often might do something that's like a more
16 generalization so that we can apply it to a bunch of different things. So, how could we
17 represent just like, a plant? What could we draw up here to be like "it represents all
18 plants?" Whether it's blueberries, like you know, a bush, or a tree.
- 19 Participant 5: Just a branch of something.
- 20 Facilitator: Maybe a branch.
- 21 Class: Maybe a branch. And maybe a root.
- 22 Participant 1: Participant 3 had just the roots and the stem. The part above the ground, trunk, stem,
23 whatever.
- 24 Facilitator: Did everybody have roots and stems though? Did everybody have a trunk?
- 25 Participant 1: That's something that a lot of people had. Yeah.
- 26 Facilitator: So is- But do blueberries come from a tree?
- 27 Participant 3: Well, I think if we said since we have apple trees, I guessed on what I though a banana
28 tree looked like, but I know what an apple tree looks like, so I can picture an apple tree.
29 Sure, I'll go with that.



30 Facilitator: So, one thing I'm wondering because I know we did this with thermal energy, sometimes
31 we can just like use a random shape to say like this is the thing. Like a box or like a
32 circle or something. So we can just be like "here's our plant." Whether its an apple tree
33 or you know. This is our blueberry bush, this is our banana tree, we just sort of, we just
34 went with our models, a lot of times they're simplifications of the real thing so that we can
35 just see the important parts. So we're going to start out by saying this is our plant.

36 Participant 6: So does that include the roots or do you wanna...

37 Facilitator: Well let's talk about that. Did people have roots?

38 Class: Yes.

39 Facilitator: That is something that was common to all models?

40 Facilitator: So I hear a few things. I hear that Participant 2 was representing those atoms that we
41 saw in our food molecules. She was saying what the stuff is made of but, so what did
42 you say water is made of?

43 Participant 2: So first I took from the very beginning, I did a banana and I said a banana consists of
44 carbs and proteins. I wrote down the carbs to the atom so carbon, oxygen, nitrogen.
45 From proteins; I did carbon, oxygen, hydrogen, nitrogen, and sulfur. I was trying to figure
46 out where they're found in the world. So, water or the rain is hydrogen and oxygen and
47 then the air consists of carbon, oxygen, and I remember, I think it was nitrogen and too
48 much nitrogen is bad. I think nitrogen is in the air. And then I remember that I went to
49 Florida and Florida has really stinky water and they told me that their stinky water was
50 because of sulfur. And so when I went through all of the water in the air, I actually found
51 all the molecules that makes up carbs and proteins.

52 Facilitator: Do you people understand what Participant 2 is saying?

53 Participant 1: Yes.

54 Participant 2: You should have took a picture.

55 Facilitator: If you're not sure, you might want to

56 ask Participant 2 a question or maybe you have an idea of your own.

57 Participant 7: Somebody said maybe it was, maybe it was you, you said, is the idea that all of these
58 pieces, these carbons and oxygens, all these pieces are coming from maybe different
59 places but then getting put together? That idea of the recipe or the plant build?

60 Participant 1: You could have one thing and then take it apart and make other things out of it.

61 Participant 6: Like play dough.

62 Facilitator: So let's continue. So I got this idea that we're building these, are we making these, is it
63 like Legos and we're putting the pieces together? Participant 2 has brought up this idea
64 that, she thinks that somehow the carbon, the hydrogen, and the oxygen and the other
65 stuff is coming into the plant and what we're trying to figure out is; what do we have in

66 common for what these possible inputs could be. So far we've got water and we got sun.
 67 What else do we have going in that is similar?

68 Participant 2: I said air.

69 Facilitator: And air? Did other people have air?

70 Participant 5: I didn't have air but it made more sense all around.

71 Participant 1: But I like that answer.

72 Facilitator: Is air going into the plant? How is it going in there? I've heard a lot from these three, how
 73 about someone over here? What's your response to how air is going in there? Did
 74 anyone else think of air?

75 Participant 5: Think of thermal energy.

76 Participant 3: Well, yeah. I think of thermal energy when we talk about how things can get in
 77 somewhere because we can't picture it is because they. When we talk about thermal
 78 energy, the ones out here bump into each other and they kind of send that energy
 79 through so could it be something similar like that or like they? Like, we're not actually
 80 having, like air, like doesn't go through our cup, but the energy around it was bumping,
 81 and then that passes the energy through because they bump each other.

82 Participant 8: What is air?

83 Facilitator: Yeah what is, so we got some. Can you write that down?

84 Participant 8: I did. That was my question I wrote down. What does air add to the model?

85 Facilitator: So we have some ideas that maybe air is going in here but maybe it's from that thermal
 86 energy where they're bumping?

87 Participant 3: Like a chain reaction kind of?

88 Facilitator: Or, you have a different idea, Participant 1?

The initial consensus model:

