

## Science Lesson on Balance

### Part 1 - Lesson Introduction and Preparing to Investigate

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Video URL: <http://goo.gl/q363D>

#### Abbreviations:

T = Teacher

S = Student

Ss = Whole class or more than one student

Time code: [minute: seconds]

- 1 T: Good afternoon physicists.  
2 Ss: Good afternoon, Ms. Reyes.  
3 T: How are you guys doing?  
4 Ss: Good.  
5 S: And you?  
6 T: Good as well. Thank you.  
7 [0:18]  
8 T: So today we are going to start an investigation, like I had mentioned, about balance. And by  
9 the end of the lesson, there's two focus questions I want you to keep in mind, that I want you to  
10 answer at the end. The first one is: how can we balance objects? How do you know when  
11 something is balanced?  
12 [0:38]  
13 T: Can you say it with me? The first question...  
14 Ss: How can we balance objects?  
15 T: Second one.  
16 Ss: How do you know when something is balanced?  
17 T: And from both questions, there is a word that comes up in both questions. The word balance. I  
18 want you to think if, I want you to raise your hand if you've heard the word balance before.  
19 Raise your hand.  
20 [1:07]  
21 T: Put your hands down. So, eleven of you have heard this word before.  
22 [1:16]  
23 T: Does anybody recognize something with this word?  
24 S: Balance. (said with a Spanish pronunciation)  
25 T: So it's a cognate, right? So balance, balancear, so I want you to think about that.  
26 [1:32]  
27 T: Think about a time when you have balanced something or you have seen somebody balance  
28 something. Balance or balancear. I want you to think. An example could be when you first learn  
29 to ride your bicycle, your bike. You were trying to balance on the bike. That's an example. Think  
30 in your head. When you have something that you've seen or done to balance something else,  
31 show me with your thumbs when you are ready.  
32 T: You are going to share with a partner, your example. And this column, we're just going to  
33 share with each other. Get started, share with your partner.

34 [2:19]  
 35 (Ss share in pairs or groups of threes, teacher circulates between small groups.)  
 36 [3:10]  
 37 T: 5-4-3-2-1-and zero. Can somebody share what you shared with your partner? Christian.  
 38 S: Balance is like when you have a ball, and you like hold it, still like. If you are like holding it,  
 39 for a long time.  
 40 T: Holding it, where?  
 41 S: In your thumb, your thumb.  
 42 T: Okay. On your thumb. (T calls on another student)  
 43 S: Balance is that, you can....  
 44 T: Think about it and I'll come back, okay.  
 45 [3:46]  
 46 T: Emily.  
 47 S: Balance is when you go to ... you can go to the doctor and you balance yourself. You...  
 48 T: Can you show me how you balance at the doctor's?  
 49 S: Can I say it in Spanish?  
 50 T: mm-hmm.  
 51 S: (Speaks in Spanish and physically demonstrates) Cuando hay una cosa, como esa balanza,  
 52 pero grande. Y tu te paras y (...) alli dice lo que tu pesas. (Translation: When there's a thing, like  
 53 that balance there, but larger. And you stand on it (...) and it tells you what you weigh).  
 54 Ss: Oh!  
 55 [4:14]  
 56 T: So who knows what she's talking about ... the balance scale?  
 57 T: Who's been to the nurse's office at this school?  
 58 T: Have you, has she made you weigh yourself?  
 59 Ss: Yeah.  
 60 T: Did she weigh how heavy you are?  
 61 T: So that's what she's talking about. So she's seen that balance used when he weighs you, right?  
 62 [4:34] (T calls on another student)  
 63 S: Balance is when you have a basketball and you spin it on your finger.  
 64 T: And what does the ball do?  
 65 S: Spins.  
 66 T: Spins where?  
 67 S: On your finger.  
 68 T: And does it stay on your finger? Or does it go to the ground and come back up?  
 69 S: It stays on your finger.  
 70 [4:51] (T calls on another student)  
 71 S: It is when you ... when you want to, like stand...on one foot?  
 72 T: Can you show us?

73 S: If you can do like this on one leg, like that (stands on one foot).  
 74 T: Without what?  
 75 S: With just one foot.  
 76 [5:15]  
 77 T: So you guys have great examples about how balance is used.  
 78 T: So balance means that you are not falling down.  
 79 T: What is balance?  
 80 Ss: Not falling down.  
 81 [5:28]  
 82 T: And right now, I want to show you a couple of examples about people or things that are  
 83 balanced. Or maybe they might not be balanced. And I want you to determine whether they're  
 84 balanced or not balanced. And remember balanced is...  
 85 Ss: Not falling down.  
 86 T: So if something is not balanced, then it's...  
 87 Ss: Falling down.  
 88 T: It's the opposite. Instead of not falling, not falling, it's falling down.  
 89 [5:59]  
 90 T: So let's take a look at this. I have the sentence frames in case you need it.  
 91 T: (Pointing at the pronouns in the sentence frame) If it's a boy, it's a he. And if it's a girl, it's a  
 92 she. Remember that?  
 93 Ss: Yeah  
 94 [6:13]  
 95 T: Is she balanced? (T shows Ss picture of a girl playing volleyball)  
 96 Ss: No, she is not balanced.  
 97 T: Because why?  
 98 Ss: Because she is falling down.  
 99 T: Is she falling down?  
 100 Ss: No, she is not falling down.  
 101 T: So we say that "she is balanced."  
 102 T: Let's try that again.  
 103 T & Ss: She is balanced because she is not falling down.  
 104 T: She is not falling down. So I'm not looking at the ball. I'm just looking at the girl. She is not  
 105 falling down. Even though she's playing volleyball, she's not falling down. So she's balanced.  
 106 [6:57]  
 107 T: How about the bicyclist? Is he balanced?  
 108 Ss: Yes. No.  
 109 T: Think about it first, before you answer. Think right now. Everybody ... point where you think.  
 110 So think about it.  
 111 T: Balance means... not falling down.

112 T: So think about it. If he's balanced, then he is not falling down. Otherwise, he is not balanced  
 113 because he is falling down. So think about it.

114 T: When you think you have an answer show me like this. (Thumb up gesture)  
 115 [7:37]

116 T: Now before you answer, I want you to raise your hand and when I point to the column ... so if  
 117 it's balanced, you are going to raise your hand if you think he's balanced. (T points at the  
 118 balanced column) And you are going to raise your hand if you think he is not balanced (T points  
 119 to the not balanced column). Okay? Ready? When I point, you're going to raise your hand.  
 120 (T points at the balanced column and then points at the not balanced column)  
 121 [7:57]

122 T: So let me ask you the question again. Is the bicyclist balanced?

123 Ss: No, he is not balanced because he is falling down.  
 124 [8:15]

125 T: And now, is the boy balanced?

126 Ss: Yes, he is balanced because he is not falling down.

127 T: Excellent.  
 128 .  
 129 [8:29]

130 T: In today's investigation, you are going to work with a trick crayfish.

131 Ss: Yeay!

132 T: And the crayfish, the material that you are going to be working with is tag board. So you are  
 133 going use a tag board crayfish, okay. So you are going to use it and you're going to use it to do a  
 134 special trick. You guys want me to show you?

135 Ss: Yes!

136 T: So you're going to use it to, what do you think we're going to use it for?

137 S: To scare people?

138 T: What do you think if I have my finger and a crayfish, what are we going to do?

139 S: Twirl it on your finger?

140 T: And what? And what, Suzanna?

141 S: (...) the things...

142 T: Not yet. Not yet.

143 T: My finger and the crayfish tag board. What am I going to do?

144 S: You can measure it?  
 145 [9:42]

146 T: We're actually going to try to balance it.

147 T: Look at how, and just with your finger. 'Cause it can make, that's the special trick.

148 T: Now, actually, you guys are scientists, right? Correct?

149 Ss: Yeah!

150 T: So as scientists, you need to pay really close attention to what you're doing. Okay?

151 T: So right now, I'm about to start. And I already didn't pay attention to what I was doing. So  
152 that's why I needed to refocus, and really pay attention to how I'm putting, positioning the  
153 crayfish. So I'm putting it this way.  
154 [10:13]  
155 T: And I've gotta think where I'm going to put my finger, first, so that I remember all this  
156 information. So that when it comes time to do our scientific journals, we remember what we did.  
157 So you have to be very mindful. What is mindful? Angie.  
158 S: I think being careful and...seeing what you're doing.  
159 T: Paying attention, right, of what you're doing to the present moment.  
160 T: So I'm going to put it right here. (T tries balances the crayfish tag board on her finger)  
161 [10:46]  
162 T: Trying to balance (...) (The crayfish falls off her finger)  
163 T: So I'm seeing that I'm putting it closer to the front. (The crayfish falls off her finger) And I  
164 didn't balance my first time. I'm going to try again.  
165 T: (The crayfish falls off again) I'm almost there. Why do you know I'm almost there? Jennifer.  
166 S: Because, when you tried the first time, it was moving a little bit and it fell down.  
167 T: It was just moving a little bit and then it fell down.  
168 T: Ah, I think I got it! It's balanced! My crayfish is balanced.  
169 Ss: (...)  
170 [11:20]  
171 T: Okay. Do you guys see it?  
172 Ss: It's moving a little.  
173 T: It is moving, because my hands are moving.  
174 T: All right. So now do you think you guys can investigate, find out, how you are going to do  
175 this? But you need to be very observant, careful. And you have to pay a lot of attention to what  
176 you're doing.  
177 S: Can we keep the crayfish?  
178 T: I don't think so 'cause other students who need to use it. Great question though.  
179 T: Any other question that you may have before you start your investigation?  
180 Ss: No.  
181 [11:57]  
182 T: So the only thing you need is the crayfish tag board, and your...  
183 Ss: Finger.  
184 T: All right, and you're going to balance the crayfish. Are there any questions?  
185 Ss: No!  
186 T: Go to your desks, carefully, and get your crayfish tag boards.  
187 [12:17] (End)