Lesson: Meet the crayfish lesson
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Video URL: http://education.ucsc.edu/ellisa/case_studies/crayfish-lesson-1a.html
Clip: Part 3

Abbreviations:
T = Teacher  S = Student  Ss = Students

[00:00:05]
T: So what are you working on?
S: Studying it.
T: Studying?
S: Yeah and then the [??]
T: So Angelo, look at these. What do you think those are called?
S: Tail joints! I mean leg joints.
T: Joints. So right here, where it says joints? You have yes.
Ss: [chattering loudly]
T: Excuse me. I need your help for a minute. So joints. Show me where your joints are on your body? Right here maybe?
S: Right here.
T: So let’s look a little bit more close. How many joints does a crayfish [??]
Ss: One, two, three, four…eight. Six. Five. Eight.
T: Because you all had different numbers so I wanted to check on that.
Ss: Eight.
T: And then look Angelo. Tail joints, right?
S: Five.
[00:01:11]
T: And how’s it going over here?
S: We’re doing good. I actually picked him up. I’m not scared anymore.
T: Nice.
S: What are bristles?
T: Oh! What are bristles?
S: I think they’re the little white things.
T: So, do you look at Anthony’s hair?
S: It’s crazy?
T: It’s kind of bristles.
S: Oh! So it’s its hair!
Ss: Where’s the tail? On the back, right here.
Ss: [students chattering]
T: Does it make sense Anthony? Does that make sense? Or how men have bristles on their face?
T: [whispers] Good job, Fish. Thank you. [in normal tone] And what I am going to ask is that everyone face this direction. If your back is to me, you might want to turn your chair around with your paper. Thank you. [00:02:16]
T: Okay. So let’s talk about what we have observed so far. [waiting for students to settle down] Okay, thank you. And, hopefully I’ve checked in with everybody, hopefully everyone has had a chance to think about the different structures listed on the worksheet and had a really good discussion about whether or not a crayfish has this structure. So let’s look at eyes. Amphibians, do crayfish have eyes?
Ss: Yes.
T: How many?
Ss: Two.
T: Did anybody see anything different?
Ss: I think—Lauren said she saw one on the belly./ No I didn’t.
[00:03:08]
T: Keep that in mind. Do crayfish have ears?
Ss: No! Crayfish have [??].
T: Crustaceans. Can you wait until people are looking at you?
S: [??] Antennas. We think that those are its ears.
T: And I heard a lot of the discussions about—because the ear came first, several teams said yes and then when they got to the antenna part, that it made them stop to think, *well do they?* So if we can’t see them, you can write *no*, or if you’re not sure, you can just write *not visible*. 
T: That means that it is not—I’m not for sure that they don’t have ears, but I couldn’t see them.

S: I think the ears are the antenna.

T: Okay. Alright. Thank you. Fish, do crayfish have walking legs?

Ss: Yes.

T: How many?

S: [silence—discussing among themselves]

T: So we had a ten?

S: Well that’s what we were counting at first, but then we changed it to eight because…[??]

T: Oh! Thank you. I'll wait. Tatiana. Can you please listen to the speaker? I know you’re double checking. I know. That’s why I didn’t move you away from the table for this. Lauren, why did your team, she said she changed it? Lauren can you say it loud so they can hear it in the back?

S: [answers very quietly]

T: She said we see two little ones. And maybe those little ones, they’re not sure, if they’re walking legs or not.

T: Okay. Thank you. Amphibians, do crayfish have antenna or antenni?

Ss: Yes.

T: How many?

Ss: Two.

T: Everyone’s guessing that’s about the same?

Ss: [chattering] I see it too./That’s what we put as the amount.

T: Oh, interesting! So we’re noticing some other structures that are in the same area as the antenni and we’re not sure if they’re antenna or a different structure? Okay!

T: Birds, do crayfish have tail flaps?

Ss: Yes./I don’t know.

T: I’ll wait. Can you wait again? Thank you. Natalie, please wait. You know what, why don’t we—we might have to move the crayfish at this point. Natalie.
S: About four, because if you separate them and count them, there’s like four.

T: Four tail flaps?

Ss: One?/Ours had five.

T: So what are you counting as a tail flap? Are you—this part back here?

S: Yeah.

T: Okay. And some groups might have put one. Okay. If you put one, leave that. It’s what you observed. You don’t have to feel like you need to change it because one group saw one thing and your group observed a different thing. They’re just sharing what they observed.

T: Alright, how about Reptiles? Do crayfish have pincers?

Ss: Pincers? Yes. Two.

T: Crustaceans, what were you saying?

Ss: We think there’s four because there…[???] There are some in the front. They’re like really little.

T: And that’s…and…thank you. And Lauren do you want to answer them?

S: [???]

T: So and we just need some more investigation. I’ll wait.

T: We need some more investigation. Some of us are—we have two pincers. Some of us are thinking that the two smaller part—structures—in the front might also be pincers so we’re not quite sure yet. And that’s okay. Alright. We’re going to be observing these organisms for a long time.

T: Do crayfish have joints? Mammals? Leg joints.

Ss: Leg joints…I don’t know. [chattering among themselves]

T: So…they’re saying no.

Ss: [discussing in background] I think so. I found some parts moving.

T: Um…hold on. Brianna.

S: [???] There’s two on each.

T: And thank you for saying I respectfully discreet [???], they might not have noticed the joints, remember had talked about these being your joints, they’re what help your legs bend—arms and
legs bend. So you might just not have observed it. Other tables were able to observe that. We look, there are some leg joints, right?

[00:09:23]

T: Alright. And back to Insects. Do crayfish have mouthparts?

S: No?

T: So your team might put not visible?

S: Yes…wait…yeah. Yeah.

T: Yes…how many?

S: Um…two.

T: Alright, Crustaceans. Do crayfish have bristles?

Ss: Yes.

T: So Crustaceans are thinking that the bristles are on their tail. Did anyone else observe them being somewhere else?

[00:10:13]

Ss: [students chattering among themselves] [??]

T: Can everyone look right here? Alexia, Rico, remember we had talked? Bristles—Anthony’s hair. And a lot—Jessie’s…bristles. There are some on our arms. It’s like a brush. So that we just have to investigate a little more. Alright. And finally, does the crayfish have bumps and points?

Ss: Yeah…

T: Okay. So team captains, will you please take the basins and set them on the back table?

[11:04]

T: Okay. So…and Lauren’s already anticipating what the next activity might be. We have our focus questions—what are the structures of a crayfish? She said that “I’m thinking that functions might be coming next”.

[00:11:20]

T: And you are most…right. Functions…a function—let me write that word on our chart here. A function is an action—I’ll wait. A function is an action or a purpose. It’s the why. Why does the crayfish have this structure? Does anybody know, the Spanish word for function?

Ss: Function…

T: Hint: it’s close.

Ss: Function…functional…

[00:12:21]

T: Anthony, remember it? It’s really close, right? So…alright. Function. Thank you for keeping your papers and pencils quiet. I like how Eddy kind of just put it on the side so she can focus. Will you please turn this way? Thank you. Okay. Functions. We have a structure called our thumbs. Our thumbs are a structure. The function of our thumbs is to grasp. We can hold things because of our thumbs. It also—we can also write because of our thumbs.

[00:13:15]

T: So for example, um, a crayfish’s structure is a pincer. The pincers have several functions for the crayfish. Let me say that again. I think some of you may have missed it. The pincers have several functions. The crayfish use the pincers to catch food, to tear the food, they use them to defend themselves against their predators and it also can help, um, hold or grab things—similar to our thumbs.

[00:14:02]

T: So, what I’m going to ask you to do now, is to—I have some—these ones are plastic. That way you can—if they drop—you’re okay. You will need to share them for each partner I believe. I’ll wait.

Ss: [chattering loudly]

T: We’re having some trouble today. Thank you. Amphibians, Birds, Fish, awesome. Thank you. I do want to thank the two back tables, the Crustaceans and the Insects. Although they’re in the back, people are turned around to make sure they hear the directions. Thank you. So you do have some plastic. What I’m going to ask you to do with your team is when I give the signal, you’re going to put your heads together and go through the list of structures and think of the function for the structure.

[00:15:16]

T: So for example, up here, I have two sentence frames. If you need help with how to start your discussion, one structure of the crayfish is eyes. The function of the eyes is to help the crayfish see. Okay? So, as I come around, you can put your heads together.

S: Do we get two?

T: You’re going to go this—let me come back. I think you can have mine. So you’re going to put your heads together, go through the list and try to figure out the functions of the different structures.

[00:16:11]