

Chapter 4

The Owls and the Snakes (1) Transcript

1. Sarah: Ok ... I feel like most people have something pretty good down. So let's come back together. We're going to step through these, like, I think, that it looks like a lot of you have a lot of different arguments, so we're going to—okay we gotta go slowly through them one by one so that people can agree or disagree or argue or whatever. Ok?..... Aaron, you awake? ... And I'm going to write them down as we go, I'm going to put them on the next page Aaron Yeah. Okay? Who's got an argu- who thinks they know what's going on and wants to share it with us? Ok, whoa, so many people. Diana let's hear yours first, and then I want to hear Robert's.
2. Diana: I said that the mother might have noticed that the snakes wouldn't harm her eggs, so she just kind of let them stay.
3. Sarah: Ok, so, the mom owl.....noticed the snakes were safe—or they weren't harming the eggs right? Not harming eggs ... [*writing*]... Eggs—I'm sorry I'm so slow ... so she let them stay.
4. Diana: Yeah.
5. Sarah: Why would she let them stay?
6. Diana: Because they're not like threatening her eggs or anything.
7. Sarah: So, if I came over to your house and I wasn't threatening anybody, would your mom just let me stay? Forever? Eat up all your food?
8. Diana: No, but I mean, like, they weren't like—
9. Sarah: No? Somebody's mother's not going to let me in? Is that what you said? Ok, go ahead—
10. Diana: But I mean like, they weren't like—taking up no room—they weren't like not really there they were just like—
11. Sarah: How do you know they weren't taking up any room?
12. Diana: They were like just there, just staying, (Avish: They're smaller than the eggs) they didn't want no food or anything. They didn't swallow, like eat her eggs or anything.
13. Sarah: Ok. Avish- Avish just said they're smaller than the eggs. That's a great point. So they knew that they were too small to eat them. Robert you look like you're going to like fall out of your seat.

14. Robert: Yeah.
15. Sarah: Ok, let's hear it.
16. Robert: Um, they probably the snakes probably eat up the eggshells or bugs that come around the nest and it's possible I don't know—if snakes give off heat because they're cold-blooded animals, but they keep the eggs warm.
17. Sarah: Ok, so there's two things going on here. First part is that the snakes are eating—tell me what you think they're eating?
18. Robert: Probably the egg shells or bugs that uh, might harm the eggs. Bugs in the nest.
19. Sarah: Egg shells or bugs. But also that the snakes are may- you're saying maybe they're keeping the eggs warm.
20. Robert: Yeah, I don't know if snakes give off heat or—
21. Sarah: What do the rest of you guys think? Are snakes giving off heat? Giving—keeping the eggs warm?
22. Student: Maybe
23. Sarah: Maybe?
24. Robert: They're cold-blooded animals.
25. Sarah: They're cold-blooded animals, so do they have heat to spare?
26. Student: No.
27. Sarah: No? Maybe a little bit? Is anybody—is there anybody who wants to respond to Robert's argument here?
28. Aaron: It's kind of confusing
29. Sarah: It's what?
30. Aaron: It's kind of confusing. I know what he's talking about, so it's 50-50. I can understand that snakes protect it, by acting like a shield from other predators that want to steal the egg and eat it, so that the snake was in the nest, other predators won't go after the egg, since the snake is probably going to eat that other predator.
31. Sarah: Ok.

32. Aaron: So the owl would just leave it there and leave it alone as an extra shield.
33. Sarah: Ok, so this is like- this is kind of a new argument, Aaron, right? You think that the snakes are up there for protection. They're protecting the eggs?
34. Aaron: Yeah.
35. Sarah: Wh- who agrees or disagrees? Michelle?
36. Michelle: I disagree because one, they're blind. And two they're smaller than the eggs so how are they really supposed to protect ...
37. Sarah: Ok, Michelle's saying they're blind, and they're too small to eat them, so how are they actually going to protect anything?
38. Aaron: Since the um, snake ...
39. Navarre: No because ...
40. Sarah: Hold on one second.
41. Aaron: But since the snakes can pick up heat around other things, around the um, area, they can like detect um a prey nearby and pick it up and snap it up.
42. Sarah: [*Inhales*] Ok hold on, we've got a time out. Ok, ok, I need a new color. So Michelle said, they're too small and they're blind. And now we're going back to blue because then Aaron said-
43. Student: That's green.
44. Students: That's green.
45. Sarah: Uh.
46. Bob: Dang, don't even know your colors.
47. Sarah: Then Aaron's saying they're really good at detecting predators in the area, so...
48. Aaron: Picking up heat around the um, area.
49. Sarah: Ok, so they tend to- they've got super-detecting. Detect predators ... through heat, perhaps. Rebuttal, go. I got red ready.
50. Michelle: Um, but still, they're still small and we don't know if they're venomous or not, so how are they supposed to protect?

51. Sarah: [*Gasp*]
52. Michelle: We don't know what they can do like, can they bite? Can they constrict? What are they going to do to protect?
53. Aaron: They'll constrict. But I'm not sure about the biting part but I think [students laughing] they can detach, detach their jaw ... and make their mouth wider. But there's a 50-50 chance of killing themselves as well.
54. Bob: Yeah, they could choke on the eggs.
55. Sarah: Ok, he's saying they can detach their jaw. You got something back?
56. Michelle: No. [*laughing*]
57. Sarah: Ok, Navarre and then Robert. I see you I haven't forgotten. Let's hear it.
58. Navarre: Um, can't there be like multiple snakes that guard around the uh, nest? Mult- multiple snakes like, 2 or 3, like around the tree? Because- because they're good with you know, working with each other.
59. Sarah: Ok, so maybe ... um, Mike? What are you holding up to your ear other than a cell phone I'm about to take?
60. Mike: It's not a cell phone.
61. Sarah: Oh, I couldn't really see; it's far away. Are you paying attention? Ok.
62. Sarah: Navarre's saying if- even if they're small, if there's a whole bunch of them, that might be able- that's good protection?
63. Navarre: Yeah, like, "Stay down, stay down, get back."
64. Sarah: Ok. Robert, let's hear it.
65. Robert: So I thought bugs that can uh cause diseases and cause, uh, like, eggs can break, like deteriorate and certain bugs can feed off of the eggs and I think it's possible that the snakes eat those eggs, and whether they're blind or not, it's not really relevant because they're millions of animals that are blind, but eat other animals, so I don't think that really matters, whether they're blind or not.
66. Sarah: Ok.
67. Diana: Do snakes have ears?

68. Sarah: So, Robert's saying even though they're blind that he does- he's saying that doesn't matter.
69. Bob: No, because they-they-they use their tongues to like to like, taste stuff, don't know, it's like ...
70. Sarah: Doesn't matter. They can use their tongue to sense things around them. And also, you're saying, if nothing else, even if they can't—Frannie and Carolina—protect them from big predators, they can definitely protect them from bugs, if nothing else. Right? Ok, where am I going to put that? Too small, but they can protect from insects.
71. Navarre: I don't like insects.
72. Sarah: Especially ones that can cause the shells to break. Ok, oh my gosh, that was like a plethora of fantastic ideas. Who else has something that's not up here? Because I know a bunch of people had their hands raised. Bob?
73. Bob: Man, I think the owl is just trying to wait for the snakes to get bigger so it can eat them.
74. Sarah: How many people said the owl's just waiting for the snakes to get better-bigger so that they are better to eat? Same thing? Anybody who agrees or disagrees? Or-white-we got agrees, who disagrees with this? Do you disagree or is it a new idea?
75. Navarre: Um, I- it's a little bit of both 'cause like-
76. Sarah: Ok, let's hear it then.
77. Navarre: If- because the snakes may grow, because the owls may wait for the snakes to get big, so they can like eat them. But the thing about it is that, you know, why would the owl want to eat the snake, when it like, you know, spent all this time- and plus, even if her eggs do hatch, if the- if she tries to kill it and feed it to her kids, who's going to protect them while she's gone looking for food?
78. Sarah: Ok, so if she does- if she is just waiting to eat them until they're bigger, then who's going to protect, you're saying.
79. Navarre: Yeah.
80. Sarah: Ok.
81. Sarah: Robert, let's hear it.

82. Robert: I think if uh, the snakes were the species that got bigger, that'd probably either mean they were babies or they weren't fully mature, so I think that that would have been said here that they weren't fully mature snakes, you know?
83. Sarah: Okay, can you Robert can you remind me when we get to the questions part to bring this issue up again?
84. Robert: That they're like not fully mature?
85. Sarah: Yeah. Ok? We'll write it down in the next one. But that's a good point. So you think that this isn't going to happen because—actually we'll just add it here, that's ok. If - you don't- you think they're full size already.
86. Robert: Yeah, otherwise that would be said here, you know?
87. Sarah: Ok.
88. Bob: A full-sized snake would have eaten the eggs.
89. Sarah: What?
90. Bob: Full-sized would have eaten the eggs.
91. Sarah: Well, what if they're snakes that are always too small- what if they're small snakes? Robert's saying even if when they're adults, what if they're still sm- too small to eat the eggs?
92. Bob: Probably worms or something.
93. Sarah: Aaron, what were you going to say?
94. Aaron: I would have to disagree on the um, waiting for the snakes to get big.
95. Sarah: Ok.
96. Aaron: By that time, the snake might have moved on to- find a different place, just in case this attempt didn't sell.
97. Sarah: Ok,
98. Aaron: So, if the snake was thinking ahead, like the owls going to take its life away, so it wants to um, move on.
99. Sarah: Ok, so they run the risk of ... here you have the risk of the snake leaving, right, [writing] Um, ok, that's good, I'm going to ask—I wanna come back to that in a

- minute. Who else? Are there any other arguments? Does somebody have an argument written down that's not up here yet?
100. Robert: I've got one.
101. Sarah: Ok, let's hear it.
102. Robert: Um, I don't have a reason for it, but snakes lose their skins every several months.
103. Sarah: Ok.
104. Robert: So it might have something to do ...
105. Sarah: Ok, so we have a new factor to throw in. How might that affect things?
106. Robert: I don't know yet. It's more complicated.
107. Sarah: Anybody else? How- [*aside as a student comes into the classroom*] wha-... oh, whatup? Ok, but I'd love to see your face. [*Gasps.*] Thank you. How-who's got an idea? How would snakes shedding their skin play into this?
108. Michelle: When they shed their skin, don't they get bigger?
109. Sarah: When they shed their skin, do they get bigger? Why do they shed their skin?
110. Navarre: I think it's kind of disgusting how they do it. They just start to go, skin just crawls off them as they go [*makes motions with his hands*].
111. Sarah: So I think that it has something to do with growth, that they kind of-they get too big for their skin and they-it plays a role in their shedding.
112. Robert: Maybe it becomes part of their nest, uh, because different animals build different nests and—
113. Sarah: Wait, you guys, remember I have to put on my job, your job, our job, and all...because it has like 46 people saying respect on it and people are talking and not listening and it feels not very respectful.
114. Robert: Uh, it could be part of their nest because different animals use different things to build nests, and it's possible the skins are used for the owl's nests.
115. Sarah: Okay, so maybe the snakeskin becomes a part of the nest. So that would be a pretty good reason to have them around, because it's adding layers to their nest each time.

116. Sarah: Okay. Anybody else? Any other arguments? What'd you say Aaron?
117. Aaron: I just dazed out. Um, what was it he said?
118. Sarah: He said maybe they keep the snakes around because when they shed their skin, it adds material to their nest. Ok. I have a few questions, then I want to hear what questions you guys have- what other information you'd want to know.
119. Sarah: My first question is, mmmm ... [*pause*] do you think that the owl knows that the snakes are blind?
120. Student: Yeah.
121. Sarah: How would the owl know that the snakes are blind? [*pause*] What do you guys think?
122. Michelle: He told them.
123. Sarah: He told them. Besides communicating in English, what do you guys think? Why- does it matter?
124. Bob: Yes...No
125. Sarah: Why would it matter? No, it doesn't matter?
126. Aaron: Actually it does matter ...
127. Sarah: Could you be more- would you want to keep um, I mean, would you be more comfortable with a lion in your house if it was blind?
128. Class: Yeah. (No.)
129. Bob: Yeah, but I mean, but like -
130. [*Several at once*]: They could smell you...
131. Bob: Snakes, they barely use their eyes or nothin'.
132. Sarah: So Bob's taking us to this idea that they barely use their eyes anyway. So that they're blind doesn't make that big of a difference. What do you guys think? Agree, disagree?
133. Sarah: Oh my gosh, are we all done talking?
134. Michelle: I'm all debated out.

135. Sarah: We're all debated out?
136. [*Several talking at once.*]
137. Sarah: Do you think the owls know that the snakes are blind?
138. Michelle: Possibly
139. Navarre: Oh, ... I don't think so ... I don't think so, because how could they communicate that to each other?
140. Navarre: Hoo! Hoo!
141. Sarah: How- what's a way that the owl could know that the snake was blind?
142. Student: Tell them!
143. Sarah: Huh?
144. [*Students indistinct*]
145. Bob: It probably bumped into the owl and so ...
146. [*Laughter*]
147. Sarah: So it's just going around, you guys are laughing but if the snake's just going around the nest, bumping into the sides of the nest, bumping into the owl-
148. Aaron: It might have stayed to the wall...
149. Sarah: What?
150. Aaron: Stayed near the walls?
151. Sarah: Stays near the walls, maybe it stays near the walls so it doesn't bump into them. But if you saw something- if you saw me just walking around, crashing into desks and people and the walls, what would you start to say about me?
152. [*Several talking at once.*]
153. Sarah: Ok, ok, I might be blind, we've got our answer
154. Aaron: But your eyes are open. Oh never mind.
155. Michelle: It doesn't matter if your eyes are open.

156. [Several talking at once. Navarre gets up to show how blind people walk around]
157. Sarah: Yeah, just like they do now with the- with- when they have walking sticks. That's what they do, ok. Let's be done with my- I won't ask my other questions, but I want to hear from your guys and I think that I need - we took up all this space, so I need one more thing. Oh, it's going to take a minute, I want to hear what- what questions did you guys have? What other information would you want to know? Navarre?
158. Navarre: Um, my questions was that um, how can the snakes find that- find anything for their food if they're blind.
159. Sarah: Ok, so how are the snakes eating if they're blind. We want to know- you, so you would want to know what is it that the snakes are eating?
160. Navarre: Or what- no, how do- how do they get around or find their food when they're blind?
161. Sarah: How do they get it?
162. Navarre: Without getting eaten themselves.
163. Sarah: Ok.
164. Rachel: They might eat just the nasty stuff that the owl feeds to the babies.
[inaudible]
165. Diana: They might be. They might smell it.
166. Sarah: Ok. So maybe they're eating leftovers that the mom owl is bringing back. That's a good idea.
167. Bob: No, no They're probably eating the- the owl pellets.
168. Sarah: The owl pellets- but what did we say what's in the owl pellets?
169. Students: Bones.
170. Bob: They don't care, they're blind.
171. Sarah: But are they going to survive if all they're eating is bones?
172. Michelle: Sure, why not?
173. Sarah: Michelle, what were you going to say?

174. Michelle: She took it.
175. Sarah: Oh, ok. So first we're saying- these are our questions. How are the snakes eating? And then the answer was maybe, uh, like leftovers basically. What other- what other question Bob?
176. Bob: Well this is like, more like, you know what I'm saying, what happens afterwards?
177. Sarah: Ok.
178. Bob: Alright, um, what happened when the eggs hatched?
179. Sarah: Ok that's a- that's a good question to put up here. So when the eggs hatched, what happened?
180. Michelle: Can THEY see?
181. Aaron: Why are they blind?
182. Bob: Wait, are those snake eggs or are they owl eggs?
183. Sarah: What does it say?
184. Bob: Owl eggs.
185. Sarah: Owl eggs. So when the owl eggs hatched, what happened? Is that the question you had?
186. Bob: Yeah.
187. Sarah: Ok. Navarre?
188. Navarre: Um, my question is that how- how um, um, are the owls blind as the snakes are?
189. Sarah: Ok, we- what we could probably assume that they are not blind. Because it would have told - I think it would have told us if they were blind.
190. Navarre: But then like ... if um, I was just saying why sn- why are snakes blind?
191. Sarah: Why are they blind; how did they become blind? Something like that?
192. Diana: Are all snakes blind or was it just those?

193. Sarah: Ok, so what it—what we said—what was our fact about them being blind? What did it say?
194. Rachel: It said the snakes are naturally blind.
195. Sarah: They were naturally blind. But was it- this- this-
196. Diana: Just like—was it just those ones that are naturally—or was it like all snakes?
197. Sarah: Of that species. Ok, so is it just- just those snakes blind, or the whole species? Just those snakes blind or whole species? Ok, why is that- Why would you want to know that? What is that going to tell you? How is that going to contribute? Go ahead, you don't have to raise your hand.
198. Rachel asks to go to the bathroom.
199. Sarah: Oh, wait, can you wait just one minute until we finish our list of questions? Diana how is that information going to help you?
200. Diana: Um, because you know ... like if, if like, the other, like, that same species, you know if it's like—if it, I know how to say it, but I—
201. Sarah: Ok, how about I- let me give you a sentence starter then, ok? So how about we say, if the whole species of snakes is blind, then ... what do you think would happen?
202. Diana: Then it'll be like, it's common, that you just know that they're blind. But if you just know that it was just those ones inside the nest.
203. Sarah: Ok, so do you think if it was- if it was not just those ones inside the nest, if all that species was blind, would you expect to see this situation happening all over?
204. Diana: More often maybe.
205. Sarah: More often. What if it was just those ones that were blind? Would you expect to see it happening in many nests?
206. Diana: No.
207. Sarah: If, ok, so if we found out that it was just those ones that are blind, that might lead us to question whether or not this was happening- this was a one time event, or this happened many times. Ok. Who else has a que- more information that they want to know? Yes, Michelle?
208. Michelle: How did the scientist know the snakes were blind?

209. Sarah: How did the scientist know the snakes were blind? Was she just guessing; did they look blind? Or did she have- what can we say about it? How-
210. Female Student: By the eyes.
211. Sarah: What?
212. Female Student: Maybe because of the eyes
213. Sarah: How would she know from that?
214. Female Student: They're like ... um, they're like whitish-grey.
215. Sarah: Ok.
216. Diana: How many snakes were in the nest?
217. Sarah: How many snakes? Why is that important to you Diana?
218. Diana: Because you'd know like how many snakes are like on the eggs and stuff.
219. Sarah: Ok, if there are a lot what- what would that make you say? What would that lead you to believe if there were a lot versus a little? I'm giving you a hard time on your questions.
220. Diana: Yeah.
221. Sarah: Someone else can answer. What would you think would be the difference between if there were like two of them in the nest or if there was like 20 of them in the nest.
222. [*Several students talking, indistinct.*]
223. Rachel: Because if there were only like 3 it might be a mistake in there, but if there's like 20 than obviously that's (*inaudible*).
224. Sarah: Ok, so if there's just a couple in there, it might be a mistake, or maybe they're hiding, is that what you're saying? But if many are in there, then we can—be pretty certain that the owl knows they're there. Ok. Michelle?
225. Michelle: When she said the eyes are grey, that can't really tell you because if the snake is shedding, don't their eyes turn like a misty blue?
226. Sarah: Ok, so we might have some trouble if that's going to be how we determine whether or not they're blind. We might have to find another way. That's a good point.

- Questions? We hit your questions? Franny and Carolina are your questions up there? You don't have any questions written down. Aaron, are your questions up there?
227. Aaron: What questions?
228. Sarah: At the bottom.
229. Aaron: Oh, yeah.
230. Sarah: Ok, questions?
231. Maical: What happens?
232. Sarah: Is it up there?
233. Maical: No, I don't have no questions
234. Sarah: No questions? Ladies any other questions you want to know; information you want to know? Information you guys want to know? Yeah?
235. Robert: What do the snakes eat? How are they eating?
236. Sarah: What do the snakes eat? That's up there! Or how are they eating?
237. Robert: And uh, who's their prey? (*inaudible*)
238. Sarah: Ok, how's that going to- Robert, make an argument about that. How's that going to affect what you think?
239. Robert: Because we're going to find out about the snakes depending on that.
240. Sarah: So, do you think the first one is depending on the second one? Or do you think the second one is
241. Robert: Well, I mean, it's not for sure but it just leads ... (*inaudible*).
242. Sarah: Wait say it again, just a little louder.
243. Robert: It just kind of leads ... might not be exact but you know it could ... it's just one-one reason. Because if the- if the owl built its nest around the snakes, ... we know that the owl wanted to be around the snakes.
244. Sarah: Ok.
245. Robert: they're staying, and the owl let them stay, then obviously the snakes are depending on the owl.

246. Sarah: Sounds good.
247. Rachel: Um, do you think the owl lets the snakes stay there like, like if the owl's gone for a long period of time does the body heat from the snakes like protect the eggs?
248. Sarah: Ok, so that was something that Robert said. May- uh, could they provide heat? So maybe um, we could, figure something out about that based on how long the owl leaves the nest for? Is that what you're saying? That's cool. That sounds good. How could we figure that out? How could we figure out if those two things are connected?
249. Diana: Um ... temperature.
250. Sarah: Ok, we could do some temperature tests. What if we saw that snake- nests without snakes in them, the owl only left for like, five minutes at a time. But then we saw the nests with snakes in them, and the owl left for like twenty minutes at a time. What would that lead you guys to believe?
251. Diana: That the snakes are there for protection.
252. Sarah: That the snakes are there to keep them warm, or to protect the eggs. That's pretty cool.
253. Rachel: But how'd they get there anyways?
254. Sarah: How did the snakes get up there in the first place?
255. Male Student: They flew there.
256. Rachel: Not the owls.
257. Sarah: The owls—you think the owl brought the snakes up? How come?
258. Diana: I think they slithered up the tree.
259. Michelle: I don't know.
260. Aaron: That's what snakes do. Climb trees.
261. Bob: Yeah, they do.
262. Rachel: They're babysitting.
263. Sarah: They went and picked up the babysitter, brought it home. How did snakes get up there? OK.

264. Bob: Oh, this was in a tree?
265. Sarah: Yeah.
266. Bob: Oh, I didn't know that.
267. Sarah: How does that—does that change the way you think about it, Bob?
268. Bob: No.
269. Sarah: No?
270. Bob: Wait.
271. Sarah: You think about it. This table, any questions? No? Franny and Carolina, Ryan, Avish, any questions? Any last thoughts about the snakes and owls? No? OK. That was really good you guys. Those were good arguments and good fact-based discussions.
272. [*Scattered applause*]