

Role-Play Scripts

Educator-Visitor Skit #1

Scene: At a public science event in the community (e.g., university open house, farmer’s market, science festival), a scientist is standing behind a table with a sea otter pelt displayed. Two members of the public up walk to the table.

Visitor #1: What is that?
Educator: It’s a sea otter pelt. It’s the skin and fur from a sea otter. Want to feel it?
Visitors: <i>[Both visitors caress the pelt.]</i>
Educator: <i>[Feeling the pelt too.]</i> It’s soft, isn’t it?
Visitor #2: <i>[nods]</i> It’s very soft.
Educator: I love the way it feels. It feels thick too, doesn’t it?
Visitor #1: Yeah, it does.
Educator: <i>[Hands magnifiers to both visitors.]</i> Take a close look at the fur.
Visitors: <i>[Visitors look closely at the pelt.]</i>
Visitor #1: This fur is thick!
Educator: Can you tell how many hairs there are in there?
Visitor #2: There are tons of hairs in there.
Visitor #1: Yeah.
Educator: This cardboard square is one square centimeter in size <i>shows cardboard square</i> . Someone once estimated that there are more than 155,000 hairs per square centimeter on a sea otter. Sea otters have more hairs in one square centimeter than people have on their whole head.
Educator: Why do sea otters have such thick fur?
Visitor #2: Maybe it’s because they come out on land at night and get real cold.
Educator: It does feel cold when you get out of the water, doesn’t it? Sea otters used to come out on land a lot, but now they hardly ever do. They spend almost all their time in the water, day and night. They live off the coast of northern California and in Alaska, and the water is very cold in both of those places. I’ve never heard of sea otters living in places with really warm water. Have you?
Visitor #1: No.
Educator: Thick fur is a structure that sea otters have that is an adaptation to survive in cold water. An adaptation is a structure or behavior that helps an organism survive. Their thick fur traps lots of air next to their skin. The air insulates their skin from the cold water. But that’s not the only adaptation they have. Another adaptation they have is a behavior. They eat a lot of food. If you ever get to watch real sea otters-and I hope you do, cause they are so cool-you’ll notice that they are constantly diving for food and eating the food they catch. Have you ever seen a real live sea otter?
Visitor #2: No, but I would like to. I did see one on the nature channel.
Educator: Yeah sea otters are very cool. Did you know they have to eat about one quarter of their weight every day? That’s like if an average 10 year old ate about 40 - 50 sandwiches every day. Have you ever known someone who is always eating and eating, but they don’t gain weight? That’s what sea otters are like. They’re eating all the time but they burn off the calories in the cold water.

Visitor # 2: Dang!
Educator: Do you know why they would have to eat so much?
Visitor # 2: I guess they're really hungry? Are they like...really fat?
Educator: Here's a picture of one. [<i>Educator shows photo of sea otter to visitor.</i>] They only grow to be about the size of a large dog, which is small compared to other mammals that live in the ocean.
Visitor# 2: Why would they have to eat more living in cold water?
Educator: Why do you think they'd need to eat more?
Visitor# 2: When I'm cold I get really hungry. They probably get really hungry being in cold water all the time.
Visitor# 1: Yeah, and it probably makes them hungry if they're swimming around all the time.
Educator: Well a whale, which is very big, has a low surface to volume ratio, right? A shrew, which is tiny, has a high surface to volume ratio, so it has to run around all the time so it can stay warm. And as far as marine mammals go, sea otters are small. And since sea otters are relatively small, they have a higher surface to volume ratio. So that's why they have to eat a lot of food.
Visitor # 1: Really? Cool.
Visitor # 2: [<i>speaking to visitor # 1</i>] Let's go check out another table.
Educator: Okay. Come back if you want to know more about otters.
Visitor # 1: OK, we'll try.

Role-Play Scripts

Educator-Visitor Skit #2

Scene: At a public science event in the community (e.g., university open house, farmer’s market, science festival), a scientist is standing behind a table with a sea otter pelt displayed. Two members of the public up walk to the table.

Educator: Do you know what this is?
Visitor #2: Fur from a bear?
Educator: Well, it’s from a marine mammal.
Visitor #1: Is it from a walrus?
Educator: You’re getting closer. Look at the size.
Visitor #2: It’s so small, maybe it’s a sea otter.
Educator: That’s right, it’s a sea otter pelt. Sea otters have 155,000 hairs per square centimeter. That’s more hairs in one square centimeter than people have on their whole head. Take a look. [<i>Hands lens to visitor #1.</i>]
Visitor #1: Yeah, that’s really thick!
Educator: Yes, sea otters have really thick fur. Why do sea otters have such thick fur?
Visitor #2: To keep them warm?
Educator: Well it does help to keep them warm in some way, but think about your hair when it gets wet – does that help to keep you warm when you go swimming?
Visitor: No, not really. Maybe the thick fur is for when they come out on land at night and get real cold.
Educator: Most sea otters don’t come onto land. They live in cold water in California and Alaska.
Visitor #2: So, how do they keep warm in the ocean?
Educator: The thick fur helps them stay warm because they put air into their fur and the thick fur traps it and creates an insulation layer that keeps them warm. What else do you think they do to stay warm?
Visitor #1: Do they wrap themselves up in kelp to stay warm?
Educator: Well that’s how they keep their babies from floating away. To stay warm sea otters have to eat a lot of... [<i>waits for visitor to fill in the word</i>]
Visitor #1: Food.
Educator: That’s right. They eat a lot of food to stay warm. Why do they have to eat more if they live in cold water?
Visitor #2: Maybe it has something to do with them being so small?
Educator: That’s right. As far as marine mammals go, sea otters aren’t big. And since sea otters are relatively small, they have a hard time staying warm in cold water even though they have such thick fur. So they have to eat a lot of food to get more energy to stay warm. Got it?
Visitor #1: Yeah.
Educator: In fact, they have to eat about one quarter of their weight every day. That’s like if a person weighed 100 pounds, and they ate how much food per day?
Visitor #1: I don’t know.
Visitor #2: 25 pounds.
Educator: That’s right. That’s a lot of food to have to eat every day. They live where

the water is cold, so that's why they have all these adaptations.
Visitor # 1: OK.
Educator: Another thing to know about sea otters is that they almost went extinct. Do you know why?
Visitor # 2: Ummm, no.
Educator: It's because sea otters have such thick fur and people wanted the nice thick fur, so they hunted sea otters almost to extinction.
Visitor # 2: Wow.
Educator: If you have more questions about sea otters, come and ask me.
Visitor # 1: OK. Thanks.

Role-Play Scripts

Educator-Visitor Skit #3

Scene: At a public science event in the community (e.g., university open house, farmer’s market, science festival), a scientist is standing behind a table with a sea otter pelt displayed. Two members of the public up walk to the table.

Visitor #1: What is that?
Educator: Come over closer and check it out. Go ahead and touch it if you want. Have you ever seen anything like this before?
Visitors: <i>[Both visitors caress the pelt.]</i>
Visitor #1: It kind of feels like my cat.
Educator: <i>[Asks Visitor #2]</i> What do you notice about this?
Visitor #2: It is really soft and thick – way softer than my cat and it has a long tail.
Educator: It does feel really soft and thick to me too. This is the skin and fur of a sea otter – it’s called a pelt.
Visitor #1: Oh, yeah. I’ve heard of sea otters.
Educator: What have you heard about them?
Visitor #1: That they live in the ocean and they use tools.
Visitor #2: I’ve heard that stuff too. I think they use rocks on their tummy to help them eat.
Educator: <i>[To Visitor 2]</i> What else have you noticed about sea otters?
Visitor #2: They are really cute, but it seems like they are really, really itchy.
Educator: What makes you think they are itchy?
Visitor #1: They were always scratching and rolling around.
Educator: I know what you mean and scientists have noticed that too. Scientists have figured out a bit about why the sea otters scratch themselves all the time. Hey, would you like to try to figure out the mystery of the itchy sea otters too?
Visitors #1 and #2: <i>[all together]</i> Sure.
Educator: OK, great. Let’s try it. Here’s a magnifying glass so you can take a closer look.
Visitor #1: Whoa! There are a lot of hairs packed together
Educator: I know. If you look at it really closely, you can see that it’s made up of a bunch of smaller hairs.
Visitors: <i>[Visitor continues to look closely at the pelt.]</i>
Visitor #2: Yeah and it looks like there are different kinds of hairs.
Educator: Their fur is thicker than almost any other animal.
Visitor #1: I wonder why?
Visitor #2: To keep them warm, maybe.
Educator: <i>[looking at visitor 1]</i> Do you agree?
Visitor #1: Yes. Lots of other animals have thick fur to keep warm too.
Educator: Have you been in the water near here?
Visitor #1: Yes, it’s pretty cold.
Visitor #2: And they’re out there in the water all the time.
Educator: One thing I can tell you about fur is that it doesn’t work very well to keep an

<p>animal warm in water. Think about your hair when it gets wet – it loses the ability to keep you warm anymore. Same thing with a sea otter. So, here’s the mystery - how do you think their thick fur helps to keep them warm? Remember the things you noticed before about the sea otters.</p>
<p>Visitor #2: When the otter was diving, I saw lots of air bubbles.</p>
<p>Visitor #1: ...and remember the way it was always scratching.</p>
<p>Visitor #2: But how can scratching and air bubbles keep the otter warm?</p>
<p>Educator: Let’s think about it together. When the otter scratches itself, it creates a layer of air next to its skin and the thick fur helps to keep the air in there. The layer of air keeps its skin nice and dry and warm even in the cold water.</p>
<p>Visitor #2: Hey could those air bubbles we saw coming off the sea otter come from the bubbles that are caught in between the skin and the hair?</p>
<p>Visitor #1: Ooh, I bet yeah. And I bet the sea otters have to scratch all the time because it looks like the air bubbles escape a lot.</p>
<p>Educator: Hm. Pretty good thinking. I think you may be on to something. Check out the books and video over here to see if there is any information that supports your conclusion.</p>
<p>Visitor #2: OK.</p>
<p>Visitor #1: Sounds good. [To Visitor #2] I wonder if there is anything in there about how they eat.</p>
<p>Educator: Well, after you watch the video and flip through the books, come back and let me know if you find out anything interesting.</p>
<p>Visitors #1 & #2: OK.</p>

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LEARNER	EDUCATOR	SCRIPT
1		Visitor #1: What is that?
2		Educator: It’s a sea otter pelt. It’s the skin and fur from a sea otter. Want to feel it?
3		Visitors: [<i>Both visitors caress the pelt.</i>]
4		Educator: [<i>Feeling the pelt too.</i>] It’s soft, isn’t it?
5		Visitor #2: [<i>nods</i>] It’s very soft.
6		Educator: I love the way it feels. It feels thick too, doesn’t it?
7		Visitor #1: Yeah, it does.
8		Educator: [<i>Hands magnifiers to both visitors.</i>] Take a close look at the fur.
9		Visitors: [<i>Visitors look closely at the pelt.</i>]
10		Visitor #1: This fur is thick!
11		Educator: Can you tell how many hairs there are in there?
12		Visitor #2: There are tons of hairs in there.
13		Visitor #1: Yeah.
14		Educator: This cardboard square is one square centimeter in size <i>shows cardboard square</i> . Someone once estimated that there are more than 155,000 hairs per square centimeter on a sea otter. Sea otters have more hairs in one square centimeter than people have on their whole head.
15		Educator: Why do sea otters have such thick fur?
16		Visitor #2: Maybe it’s because they come out on land at night and get real cold.
17		Educator: It does feel cold when you get out of the water, doesn’t it? Sea otters used to come out on land a lot, but now they hardly ever do. They spend almost all their time in the water, day and night. They live off the coast of northern California and in Alaska, and the water is very cold in both of those places. I’ve never heard of sea otters living in places with really warm water. Have you?
18		Visitor #1: No.
19		Educator: Thick fur is a structure that sea otters have that is an adaptation to survive in cold water. An adaptation is a

		structure or behavior that helps an organism survive. Their thick fur traps lots of air next to their skin. The air insulates their skin from the cold water. But that's not the only adaptation they have. Another adaptation they have is a behavior. They eat a lot of food. If you ever get to watch real sea otters-and I hope you do, cause they are so cool-you'll notice that they are constantly diving for food and eating the food they catch. Have you ever seen a real live sea otter?
20		Visitor #2: No, but I would like to. I did see one on the nature channel.
21		Educator: Yeah sea otters are very cool. Did you know they have to eat about one quarter of their weight every day? That's like if an average 10 year old ate about 40 - 50 sandwiches every day. Have you ever known someone who is always eating and eating, but they don't gain weight? That's what sea otters are like. They're eating all the time but they burn off the calories in the cold water.
22		Visitor #2: Dang!
23		Educator: Do you know why they would have to eat so much?
24		Visitor #2: I guess they're really hungry? Are they like...really fat?
25		Educator: Here's a picture of one. [<i>Educator shows photo of sea otter to visitor.</i>] They only grow to be about the size of a large dog, which is small compared to other mammals that live in the ocean.
26		Visitor#2: Why would they have to eat more living in cold water?
27		Educator: Why do you think they'd need to eat more?
28		Visitor#2: When I'm cold I get really hungry. They probably get really hungry being in cold water all the time.
29		Visitor#1: Yeah, and it probably makes them hungry if they're swimming around all the time.
30		Educator: Well a whale, which is very big, has a low surface to volume ratio, right? A shrew, which is tiny, has a high surface to volume ratio, so it has to run around all the time so it can stay warm. And as far as marine mammals go, sea otters are small. And since sea otters are relatively small, they have a higher surface to volume ratio. So that's why they have to eat a lot of food.
31		Visitor #1: Really? Cool.
32		Visitor #2: [<i>speaking to visitor #1</i>] Let's go check out another table.
33		Educator: Okay. Come back if you want to know more about otters.
34		Visitor #1: OK, we'll try.

Role-Play Scripts

Educator-Visitor Skit #2

Scene: At a public science event in the community (e.g., university open house, farmer’s market, science festival), a scientist is standing behind a table with a sea otter pelt displayed. Two members of the public walk to the table.

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7		Educator: That’s right, it’s a sea otter pelt. Sea otters have 155,000 hairs per square centimeter. That’s more hairs in one square centimeter than people have on their whole head. Take a look. [<i>Hands lens to visitor #1.</i>]
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9		Educator: Yes, sea otters have really thick fur. Why do sea otters have such thick fur?
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11		Educator: Well it does help to keep them warm in some way, but think about your hair when it gets wet – does that help to keep you warm when you go swimming?
12		Visitor: No, not really. Maybe the thick fur is for when they come out on land at night and get real cold.
13		Educator: Most sea otters don’t come onto land. They live in cold water in California and Alaska.
14		Visitor #2: So, how do they keep warm in the ocean?
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16		Visitor #1: Do they wrap themselves up in kelp to stay warm?
17		Educator: Well that’s how they keep their babies from floating away. To stay warm sea otters have to eat a lot of... [<i>waits for visitor to fill in the word</i>]
18		Visitor #1: Food.
19		Educator: That’s right. They eat a lot of food to stay warm. Why do they have to eat more if they live in cold water?
20		Visitor #2: Maybe it has something to do with them being so small?
21		Educator: That’s right. As far as marine mammals go, sea otters aren’t big. And since sea otters are relatively

		small, they have a hard time staying warm in cold water even though they have such thick fur. So they have to eat a lot of food to get more energy to stay warm. Got it?
22		Visitor #1: Yeah.
23		Educator: In fact, they have to eat about one quarter of their weight every day. That's like if a person weighed 100 pounds, and they ate how much food per day?
24		Visitor #1: I don't know.
25		Visitor #2: 25 pounds.
26		Educator: That's right. That's a lot of food to have to eat every day. They live where the water is cold, so that's why they have all these adaptations.
27		Visitor #1: OK.
28		Educator: Another thing to know about sea otters is that they almost went extinct. Do you know why?
29		Visitor #2: Ummm, no.
30		Educator: It's because sea otters have such thick fur and people wanted the nice thick fur, so they hunted sea otters almost to extinction.
31		Visitor #2: Wow.
32		Educator: If you have more questions about sea otters, come and ask me.
33		Visitor #1: OK. Thanks.

Role-Play Scripts

Educator-Visitor Skit #3

Scene: At a public science event in the community (e.g., university open house, farmer’s market, science festival), a scientist is standing behind a table with a sea otter pelt displayed. Two members of the public up walk to the table.

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2		Visitors: [<i>Both visitors caress the pelt.</i>]
3		Visitor #1: It kind of feels like my cat.
4		Educator: [<i>Asks Visitor #2</i>] What do you notice about this?
5		Visitor #2: It is really soft and thick – way softer than my cat and it has a long tail.
6		Educator: It does feel really soft and thick to me too. This is the skin and fur of a sea otter – it’s called a pelt.
7		Visitor #1: Oh, yeah. I’ve heard of sea otters.
8		Educator: What have you heard about them?
9		Visitor #1: That they live in the ocean and they use tools.
10		Visitor #2: I’ve heard that stuff too. I think they use rocks on their tummy to help them eat.
11		Educator: [<i>To Visitor 2</i>] What else have you noticed about sea otters?
12		Visitor #2: They are really cute, but it seems like they are really, really itchy.
13		Educator: What makes you think they are itchy?
14		Visitor #1: They were always scratching and rolling around.
15		Educator: I know what you mean and scientists have noticed that too. Scientists have figured out a bit about why the sea otters scratch themselves all the time. Hey, would you like to try to figure out the mystery of the itchy sea otters too?
16		Visitors #1 and #2: [<i>all together</i>] Sure.
17		Educator: OK, great. Let’s try it. Here’s a magnifying glass so you can take a closer look.
18		Visitor #1: Whoa! There are a lot of hairs packed together
19		Educator: I know. If you look at it really closely, you can see that it’s made up of a bunch of smaller hairs.
20		Visitors: [<i>Visitor continues to look closely at the pelt.</i>]
21		Visitor #2: Yeah and it looks like there are different kinds of hairs.
22		Educator: Their fur is thicker than almost any other animal.

23		Visitor #1: I wonder why?
24		Visitor #2: To keep them warm, maybe.
25		Educator: [<i>looking at visitor 1</i>] Do you agree?
26		Visitor #1: Yes. Lots of other animals have thick fur to keep warm too.
27		Educator: Have you been in the water near here?
28		Visitor #1: Yes, it's pretty cold.
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34		Educator: Let's think about it together. When the otter scratches itself, it creates a layer of air next to its skin and the thick fur helps to keep the air in there. The layer of air keeps its skin nice and dry and warm even in the cold water.
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36		Visitor #1: Ooh, I bet yeah. And I bet the sea otters have to scratch all the time because it looks like the air bubbles escape a lot.
37		Educator: Hm. Pretty good thinking. I think you may be on to something. Check out the books and video over here to see if there is any information that supports your conclusion.
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39		Visitor #1: Sounds good. [To Visitor #2] I wonder if there is anything in there about how they eat.
40		Educator: Well, after you watch the video and flip through the books, come back and let me know if you find out anything interesting.
41		Visitors #1 & #2: OK.