

ELINOR WONDER'S WHY

EW130A: ECHO LOCATION

Written by
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Question: How does Ari know where things are when he's blindfolded?

Logline: The kids learn about echo-location

Curriculum Goals: **LS2.** Understand that animals have different body parts that are used in different ways to meet their needs.

- a. Identify body parts of animals and their function
- c. Compare how the external body parts of animals and plants are the same and/or different
- d. Explore how different external features of an animal help it survive in its environment. (Elinor and Olive learn that Ari's ability to make high-pitched sounds and his sensitive ears give him a special skill - echolocation).

SEP1. Asking questions (science) and defining problems (engineering)

- a. Demonstrate curiosity about the greater world outside of their local environment
- b. Ask more complex questions about observable phenomena
- c. Ask and/or identify cause and effect questions that can be answered by an investigation (Ari, Elinor and Olive wonder about how their voices are bouncing back near a cliff face. so they do an investigation that leads them to the idea of echoes).

SEP3. Planning and carrying out investigations

- b. Compare and contrast objects and events by describing similarities and differences in detail
- c. Demonstrate an ability to make and test predictions based on background knowledge and experiences. (Elinor and her friend contrast the echoes they all can hear with Ari's echolocation abilities).

SEP6. Constructing explanations (science) and Designing Solutions (engineering)

- a. Use background knowledge experiences, and data to construct reasonable explanations and theories of natural phenomena (science)
- b. Look for and describe patterns and relationships in natural phenomena (science) (Elinor, Ari and Olive use their knowledge they've gained experimenting with echoes to understand Ari's echolocation)

FIRST DRAFT: January 13, 2020
SECOND DRAFT: January 29, 2020
POLISH DRAFT: February 26, 2020
RECORD DRAFT: March 02, 2020

1. **EXT CAMPSITE -- DAY**

1.

It's a sunny afternoon in the forest, and ARI, ELINOR and OLIVE are on a camping trip with Ari's family. We open as Elinor and Olive are finishing setting up their tents at a campsite (we can reuse the ones from the Light The Way episode).

1 ELINOR 1
 There. All done.

2 OLIVE 2
 Me too. How's your tent going, Ari?

We pan over to Ari as he puts on the finishing touches on his tent.

3 ARI 3
 All set! I think I'm finally
 getting the hang of camping.

At that moment, we hear a bit of chaotic noise. Next to Ari, we see MR. BAT having some trouble setting up the family tent from inside <SFX: OOF/URK/HMM>.

4 ARI (O.S.) (CONT'D) 4
 Uh, Dad, do you need help?

Mr. Bat's head emerges from the tent, which is a jumbled mess.

5 MR. BAT 5
 Thanks, Ari. That would be great. I
 haven't quite figured this out yet.

The tent collapses around him. MIRI (Ari's baby sister), in MRS. BAT's arms, <SFX: GIGGLES>. The kids go over and hold down the corners of the tent while Mr. Bat continues to try to prop up the poles.

6 MR. BAT (CONT'D) 6
 Thanks, kids. You know, at home we
 bats usually sleep hanging from the
 ceiling, so setting up tents and
 sleeping on the ground is all very
 new to us.

As he talks, we see a THOUGHT BUBBLE of Mr. and Mrs. Bat sleeping upside down at their house.

7 ELINOR 7
 That's what makes camping an
 adventure!

8 MR. BAT 8
 You're exactly right, Elinor.
 Camping is all about being out in
 Nature and doing things
 differently.

9 ARI 9
 And, let's not forget, having tasty
 camping snacks!

10 OLIVE 10
 (giggles)
 Ari liking snacks is not very
 different.

They all <SFX: LAUGH>.

11 ELINOR 11
 My favorite part of camping is to
 go exploring in a new place, so I
 can see and hear new things.

12 MR. BAT 12
 Well, we'll go for a nice walk
 soon, just as soon as I (struggling
 with tent pole) finish...
 setting... up... this... tent!

The tent collapses again. Miri <SFX: GIGGLES> again.

13 MR. BAT (CONT'D) 13
 (poking his head out)
 I think we know what Miri's
 favorite part of camping is:
 watching her dad try to set up the
 tent.

Miri continues to <SFX: GIGGLE> and the kids join in.

14 MRS. BAT 14
 (setting Miri down and
 rolling up her sleeves)
 Oh dear. Why don't you kids go
 play? I'll help Mr. Bat.

The kids look at each other smiling and run off.

15 ARI 15
 Thanks, Mom!

2. **EXT. FIELD -- DAY** 2.

The kids walk a few feet away to a field (within eyesight of the camp) as they talk about what to do.

16 OLIVE 16
What should we do?

17 ELINOR 17
I just learned a really fun game,
want to play it?

Ari and Olive are game <SFX: WALLA YEAH!/SURE!>.

18 ELINOR (CONT'D) 18
It's called "Marco Polo." It's kind
of like tag, but you play with your
eyes closed.

19 ARI 19
With your eyes closed?

Elinor pulls out a blindfold she brought along.

20 ELINOR 20
Yeah, here's how it works. If
you're "it" you wear this blindfold
so you can't see.

21 OLIVE 21
Wait... if you can't see, how do
you tag anyone else?

Olive pantomimes randomly tagging the air.

22 ELINOR 22
That's the fun part. If I'm "it"
and I say "marco", then everyone
else has to say "polo."

23 ARI 23
Oh, I get it. So when you HEAR them
say "polo", you can tell where they
are, without SEEING them.

24 OLIVE 24
Sounds fun. Can I be "It" first?

Elinor puts the blindfold on Olive. From Olive's POV, we see the blindfold go over her eyes. Everything is dark for a moment. Back to the outside view, Olive has her arms out in front of her.

25 OLIVE (CONT'D) 25
 Wow, I can't see anything!

Ari does a silly dance. [Note for animation: make sure the kids' acting is respectful, and not seen as taunting]

26 ARI 26
 Did you see that?

Olive shakes her head <SFX: WALLA NOPE/UH-UH>. Ari does a sillier dance.

27 ARI (CONT'D) 27
 How about that?

Olive shakes her head again <SFX: WALLA NOTHING/NO>.

28 ARI (CONT'D) 28
 Wow, that's a good blindfold.

29 ELINOR 29
 Ok, but can you HEAR us?

Olive points to Elinor.

30 OLIVE 30
 Yes! I can HEAR that you are right there.

Ari is flying off to the side.

31 ARI 31
 Ooh! Can you hear me?

Olive perks her ears up and points to Ari with her trunk.

32 OLIVE 32
 Yes! I can hear you way up there! Hey, no flying!

Ari lands. They all <SFX: GIGGLE>.

33 ARI 33
 Cool, I like this game.

34 ELINOR 34
 Let's play!

Elinor and Ari walk to new places. Olive takes a few tentative steps, and walks around with her hands (and trunk) in front of her.

35 OLIVE 35
 Ok, here I come! Marco!

36	ELINOR/ARI	36
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Polo!

Olive moves in the direction of Ari, who scrambles out of the way. Ari and Elinor <SFX: GIGGLE>. The kids play for a few beats, calling and responding <SFX: MARCO! POLO!>.

Olive moves towards Elinor, who dodges, and Olive grabs a bush instead.

37	OLIVE	37
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Got you! But you don't feel like
Elinor... (lifting the blindfold)
Oops, it's a bush!

They all <SFX: LAUGH>.

38	OLIVE (CONT'D)	38
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Wow, that's hard!

39	ARI	39
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Oooh, I want to try!

Olive hands him the blindfold. He ties it on as the girls find their places.

40	ARI (CONT'D)	40
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Get ready, here I come.

The girls smile and suppress their <SFX: GIGGLES> as Ari holds his arms out. As he starts walking, he moves much more confidently than Olive did.

41	ARI (CONT'D)	41
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Let's see... where are you... Got
you!

He walks straight to Elinor and tags her. [Note for animation: show Ari smiling when he walks, with his mouth open and making barely perceptible vocalization movements]

42	OLIVE	42
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Wow! You didn't even say Marco.

43	ELINOR	43
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Yeah, how did you find me so fast,
Ari?

Ari shrugs.

44	ARI	44
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I just kind of... heard you were
over here?

45 ELINOR 45
But I was totally quiet! I never
said Polo.

46 ARI 46
Hmm, you're right. I'm not sure.
Let's try again?

He puts the blindfold back on and the girls find their
places. They start playing again, calling and responding
<SFX: WALLA MARCO! POLO!>.

Ari heads right for Olive, who dodges out of the way and goes
around a bush. Ari looks momentarily confused, then takes a
few steps until Olive is in his line of sight, then easily
goes to her and tags her.

47 ARI (CONT'D) 47
Got you!

48 OLIVE 48
But... how? How did you know I went
around the bush?

49 ELINOR 49
Is the blindfold working?

They check and it looks good.

50 ARI 50
I couldn't see anything!

51 ELINOR 51
Wow. I wonder how you were able to
find us so well.

52 OLIVE 52
Yeah, even when we were super
quiet?

53 ELINOR 53
Hmmm, we need more observations.
Ari, do you have an extra eye
somewhere?

They check his head and forehead for a third eyeball, but
don't find one.

54 OLIVE 54
Nope. So how did you do it?

ARI

(shrugging)

I dunno. I can just... hear where things are?

Just then, Mr. Bat comes over.

56 MR. BAT 56
Good news kids! The tent is all set
up, so it's time to go for a walk!

The kids <SFX: YAY! AWESOME!> and follow Mr. Bat, except for Elinor, who hangs back a little, still a bit puzzled.

3. EXT CLIFFS -- LATE AFTERNOON 3.

A cross-fade later, Mr. and Mrs. Bat lead the kids on a walk with Miri in a baby carrier strapped to Mrs. Bat. Mrs. Bat takes out some baggies of trail mix from Mr. Bat's backpack.

57 MRS. BAT 57
Here, pass these out to your
friends, Ari.

58 OLIVE 58
Looks good. What is it?

Ari passes them around.

59 ARI 59
It's called "trail mix." It's got
chocolate chips and other stuff.

60 ELINOR 60
What other stuff?

61 ARI 61
I dunno. I only eat the chocolate
chips.

The kids <SFX: GIGGLE> as they munch on the trail mix.

62 ELINOR 62
I love going for a walk in a new
place.

63 MR. BAT 63
Well, I'm excited to show you all
something REALLY extra cool.

They come around a bend and up to a lookout spot (with wooden guard rails) at the edge of a modest canyon.

It's a nice view, and they can see pretty far down the canyon as the sun is low on the horizon. Across the canyon and to the right is a tall flat cliff face.

64 OLIVE 64
Wow, what a nice spot. It's SO beautiful here.

65 MR. BAT 65
Look at those smooth, tall rocks.

66 ELINOR 66
Wow, I've never seen rocks like that before.

Ari goes to pop a chocolate chip in his mouth, but misses. He scrambles <SFX: WH-WHOA>, but the chip falls on the floor.

67 ARI 67
Oh NOOOO!

He goes to pick it up when, a moment later, his echo returns <SFX: (ECHO) OH NOOOOO...>. The kids are all really surprised.

68 ARI (CONT'D) 68
(finishing picking up the chip)
Who said that?

Mr. Bat smiles.

69 MR. BAT 69
Listen to this, and you'll figure it out for yourself.

He cups his hands towards the cliff.

70 MR. BAT (CONT'D) 70
HELLO!

A moment later his <SFX: (ECHO) HELLO...> returns. Olive and Elinor are amazed, and try it themselves by shouting out to the canyon.

71 ELINOR 71
HELLO I'm Elinor!

A moment later, her <SFX: (ECHO) HELLO I'M ELINOR...> comes back from the cliffs to the right.

The kids <SFX: LAUGH>. Olive <SFX: TRUMPETS> towards the cliff and it <SFX: (ECHO) TRUMPETS> back to her!

72	ELINOR (CONT'D) How is that happening?	72
73	ARI It's like the rocks are talking back to us.	73
74	MR. BAT Haha, in a way, Ari. What you're hearing is the sound of your voice bouncing off those rock over there and coming back to us. That sound is called an 'echo'.	74
We see a THOUGHT BUBBLE with a top view that illustrates sound as wiggly waves being emitted from the kids in all directions. One of the wiggly lines bounces off the cliff to the right and comes back. The visualizations are supported by sound mix effects when the waves are emitted.		
75	OLIVE Echo. I like that word.	75
76	ARI That's so neat! (to the canyon) ARI IS SO COOL!	76
The cliff echoes back <SFX: ECHO ARI IS SO COOL>.		
77	ARI (CONT'D) Hey, the rocks agree with me.	77
The kids <SFX: GIGGLE>. Elinor tries again. This time, she closes her eye in her effort to make it louder.		
78	ELINOR EXPLORING IS FUN!	78
The cliffs echo back <SFX: (ECHO) EXPLORING IS FUN...> from her right. Elinor turns her head and opens her eyes.		
79	ELINOR (CONT'D) Hmmm. That is SO interesting.	79
80	ARI What is it Elinor?	80
81	ELINOR I shouted with my eyes closed, and from the echo I could tell where the rocks are.	81

82 OLIVE 82
That makes sense. When the shout
comes back, it comes from the rock.
So you can hear where it is, even
if you have your eyes closed.

83 ELINOR 83
(excited)
The echo lets you hear where the
rocks are.

In a repeat THOUGHT BUBBLE, we see another top view in which
Elinor shouts, sending wiggly lines in all directions. The
ones on the right bounce off the cliff and come back.

84 OLIVE 84
Ooohh. If we were playing Marco-
Polo with the rocks, that would
help.
(closing her eyes)
MARCO! (then) POLO!
The cliffs <SFX: (ECHO)
MARCO!... POLO!>.
OLIVE (CONT'D)
(pointing with her trunk)
The rocks are that way!

Elinor makes a connection.

85 ELINOR 85
Wait, is THAT how Ari found us when
we played Marco Polo and we didn't
make any sounds? Were you using
echoes, Ari?

86 ARI 86
Was I?

87 OLIVE 87
I didn't hear him making any
echoes. He found us without even
saying "Marco".

88 ARI 88
I just... heard where you were.
Maybe I have a special bat-sense?

Mr. and Mrs. Bat look at each other knowingly.

89 MR. BAT 89
Actually, Ari, you do. You have a
special bat echo.

90 ARI 90
 Really? I do? I mean, of course I
 do. Uh, how does it work?

91 MR. BAT 91
 Bats can make a special noise that
 bounces off of things to make
 echoes.

92 ARI 92
 A special noise? Like this?
 <nonsense sound>

93 MR. BAT 93
 Haha. That's a funny noise. I mean
 a special noise that most animals
 can't hear.

94 ELINOR 94
 Wow, really?

95 MR. BAT 95
 Yes! Only bats can hear it (he
 wiggles his ears), and we use it to
 tell what is around us. By
 listening to the echoes, we can
 tell where things are.

We see a THOUGHT BUBBLE that shows Mr. Bat walking in the
 forest, emitting sound wiggles that bounce off trees and
 rocks (similar to the echo visualization earlier). His ears
 twitch as he registers the wiggles coming back from objects.
 The kids are <SFX: AMAZED WALLA>.

96 ELINOR 96
 Why can bats do that?

97 MR. BAT 97
 Well, lots of bats like to fly at
 night. Can you guess why this
 special echo would be helpful?

The kids think for a bit <SFX: HMMM>.

98 OLIVE 98
 I know! Because it's night and you
 can't see in the dark! It's like
 closing your eyes or wearing a
 blindfold.

99 MR. BAT 99
 That's right. This special echo
 helps bats find things in the dark,
 like food.

104 ARI 104

Hmm, mine needs another minute. I
like it extra cooked.

105 MR. BAT 105
You mean extra burnt?

106 ARI 106
No, I like it burnt just right.

They <SFX: LAUGH>. Ari takes his food off the fire and Mrs Bat puts it on plates to cool.

107 MRS. BAT 107
It's so nice to have a cozy
campfire dinner.

108	OLIVE	108
	That reminds me! I want to read my book by the cozy campfire. But... I left my book in my tent.	

She looks over into the darkness.

OLIVE (CONT'D)

And.. It's pretty dark over there.

110 ARI 110
I'll get it for you. Bats are great
at getting around in the dark.

He navigates confidently to Olive's tent, humming the tune from the ditty. Elinor looks at him and we see in a THOUGHT BUBBLE what she's thinking: she imagines Ari walking and the sound waves bouncing off the things around him. Ari then comes back, with an extra bag of trail mix in hand.

111 ARI (CONT'D) 111
Here you go, Olive.

He gives Olive her book.

112 MR. BAT 112
And what else did you find?

113	ARI	113
	An extra bag of trail mix. Like you said dad, bats are good at finding food in the dark!	

114 MR. BAT 114
I'll echo that! Bats are good at
finding food in the dark!

They all <SFX: LAUGH> as the view pulls up into the starry night sky and we...

FADE OUT.

SEGMENT 2.

1. EXT. FOREST -- SUMMER DAY

Elinor and Olive are on a walk through the forest with Mz. Mole. As they pass a rocky slope, five small birds suddenly fly past and into a cave where they disappear into the darkness. The kids are amazed.

115	ELINOR	115
	Whoa! Why did those birds go into that cave?	

116	MZ. MOLE	116
	They're flying home. They live in that cave.	

Perspective from inside the cave looking out at Elinor, Olive and Mz. Mole as they peer in.

117	OLIVE	117
	But it's so dark in there. How do they know where to fly?	

118	ARI	118
	Hellooooo!	

Ari's voice <SFX: ECHOES HELLO> around the cave.

119	MZ. MOLE	119
	Some animals are really good at getting around in the dark. Instead of using their eyes, they use their ears.	

120	ELINOR	120
	How do they do that?	

121	MZ. MOLE	121
	I'll show you!	

Mz. Mole takes out her storybook and opens the front cover. CLOSE ON the storybook which shows a small bird called a swiftlet flying through the air.

2. THE STORYBOOK

The storybook comes to life in a pop-up book style of animation and the swiftlet flies through the air <SFX: CHIRPING>.

122	MZ. MOLE (V.O.)	122
	This little bird is a swiftlet. It is a very special bird that builds its nest inside a dark cave.	

Looking into the mouth of a dark cave, the swiftlet flies in. Then from a profile point of view, the swiftlet flies through the cave tunnels deeper into the dark. The scene suddenly becomes monochromatic or dark blue to indicate the darkness of the cave. The bird flies along and appears to be on a collision course with a low hanging part of the cave ceiling.

123	OLIVE (V.O.)	123
	Watch out, little bird!	

The swiftlet suddenly swoops down and flies under the low hanging rocky projections from the ceiling and then up onto a nest stuck to the side of the cave wall. Close on the bird sitting on the nest.

124	ELINOR (V.O.)	124
	How does the swiftlet know where to go?	

125	MZ. MOLE (V.O.)	125
	Because it's dark, a swiftlet can't use its eyes to see. It uses its ears to find its way.	

126	ARI	126
	Can it SEE with its EARS?	

The swiftlet flies out of the nest and around the cave. As it flies, it <SFX: CHIRPS REPEATEDLY> and navigates around the rocky walls and ceilings, twists and turns of the cave.

127	MZ. MOLE (V.O.)	127
	Ha! Not quite. As it flies, it makes chirps and then hears the chirps bouncing off the walls of the cave.	

128	ARI	128
	That's called an echo.	

129 MZ. MOLE 129
 That's right. The echo bouncing
 back tells the swiftlet where the
 walls are, and that's how it gets
 around.

Simple animation illustrates the sound of the bird's chirps
 bouncing back to the bird as it flies. The swiftlet makes its
 way back to its nest where it perches once again.

130 ELINOR 130
 Wow, it HEARS where to go!

A pair of little baby swiftlets pop their heads up with their
 beaks open.

131 OLIVE (V.O.) 131
 Look! It has babies!

132 MZ. MOLE (V.O.) 132
 And soon these baby swiftlets will
 learn how to use their ears to fly
 safely in the dark cave.

3. EXT. FOREST -- SUMMER DAY

The birds fly back out of the cave past Mz. Mole, Elinor and
 Olive.

133 ELINOR AND OLIVE 133
 (together) Swiftlets are cool!

The kids' voices <SFX: ECHOES Swiftlets are cool... Swiftlets
 are cool...> around the cave.

END