

ELINOR WONDERS WHY

EW152: BIG TREES

Written by
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Question: Why are sequoia trees so tall?

Logline: Ari wants to build as big a block tower as he can, but it keeps falling down until he gets some building inspiration from the sequoia trees.

Curriculum: LS2. Understand that animals have different body parts that are used in different ways to meet their needs, and that plants have different parts that help them survive and grow:

b. Identify the basic parts of plants 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 a plant or animal help it survive in its environment. (Elinor and her friends observe the size of the sequoia tree, especially the circumference of the base.)

ND3. (RTL Crosscutting concept 'Structure and Function'): Understand that structures and materials in the natural world can be used or can inspire the engineering of structures with similar function in the designed world. (Ari decides to copy the structure of the big tree to help him build a more stable block tower at home).

ET1. Begin to understand that asking questions, making observations, and gathering information are helpful in thinking about problems, and that it is important to clearly understand the problem before beginning to design a solution

b. Define a simple problem that can be solved through the design of a new or improved tool or technology

(Ari defines the problem of his unstable block tower and designs a new and more stable way to build it, with a larger base).

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

d. Identify a problem that can be solved by the design a new or improved object or tool (engineering)

(Elinor and her friends go on a field trip and observe the structure of the Sequoia, which Ari relates to the problem of his unstable block tower).

SEP5. Using mathematics and computational thinking

- d. Use measurement tools to measure and quantify properties of observable phenomena and objects
(Elinor and her friends measure the base of the tree by counting the number of kids it takes to encircle it)
- 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)
 - c. Use and apply productive science discourse to support an explanation
 - d. Use evidence to support a theory or solution to a problem (engineering) (Elinor and her friends observe that the Sequoia is more stable be-cause of it's wide base, and Ari used that idea to make his block tower more stable).

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We open on a wooden toy block being held under another block. As we pull out, we see that it's being held up by ARI. The camera pulls out further and rotates to reveal that he's hanging upside down from the door jam, holding a block with one hand while trying to place another one on top of a teetering tower of ~10 blocks. (If the height still doesn't work, we could put the block tower on top of the coffee table?).

1 ARI (COMICALLY LOUD WHISPER) 1
Here we go folks. If Ari can place
these last two blocks...

2 ARI (CONT'D) 2
... this will officially be the
tallest block tower IN THE WORLD!

3 ARI (CONT'D) 3
Stay right there, little block. No
falling.

4 U_h o_h. ARI (CONT'D) 4

5 ARI (CONT'D) 5
Phew! One more block for the WORLD
RECORD.

Ari reacts, pulling back his arm as Miri crawls into the room
(safely away from the tower).

Miri gestures that she wants to play too.

7 ARI (CONT'D) 7
Oh, I know you want to help, but
this is really important. It's for
the world record.

Ari reaches out and puts the last block on the unstable looking tower. The tower teeters.

8 Uh oh. ARI (CONT'D) 8

The tower starts to lean one way. <SFX: GASP!> Ari flies down. He hovers on the side that's falling and blows desperately on the tower to keep it up. The tower teeters the other way. Ari flies to the other side and blows on it again. It sort of looks like it works, but then: PLOP. The tower falls on him, showering him comically with blocks.

Miri <SFX: GIGGLES>.

9 ARI (CONT'D) 9
Yeah, I know. It's kinda fun when
it falls down.

He gets up and assesses the fallen blocks.

10 ARI (CONT'D) 10
I guess I'll have to keep trying!

11 MR. BAT (OS) 11
Ari, are you ready for school? It's
time to go.

Mr. Bat appears in the doorway.

12	ARI	12
	Aww, can I build one more tower?	
	Pleaaaaase?	

13 MR. BAT 13
You can't be late. Remember, today
is a special day: it's your class
field trip!

Ari gets very excited, does a little celebration dance as Miri crawls over to Mr. Bat.

14	ARI	14
	Oh, YES! Field trip! Wooo hoo!	*

Ari flies over to the kitchen table, where Mr. Bat has Ari's hat and is packing his lunch. He puts the hat on Ari's head.

16 MR. BAT 16 *

I know. I've been your dad for a few years now.

17 MR. BAT (CONT'D) 17 *

Here's your morning snack, your bus
ride snack. The mid-morning snack.
The lunch snack and... The *
afternoon snack. *

19 MR. BAT 19 *

 On it.

20 ARI 20
Thanks, Dad! You're the best. Bye
Miri!

21 ARI (CONT'D) 21
Don't worry. I got this.

2. EXT SCHOOL YARD / BUS - DAY

22 ARI 22
Hi, Elinor! Hi, Olive! Uh, what are
you doing?

23 OLIVE 23
(giggles) We're hugging a tree! I really love trees, so I wanted to give this one a hug, but my arms couldn't reach all the way around.

24 ELINOR 24
So I helped her! And now we're playing ring around the tree.

The girls do a turn around the tree and let go, <SFX: GIGGLING> as they dust themselves off.

25 OLIVE 25
Ari, are you excited for our field trip today?

26 ARI 26
Yeah! Although... it did keep me from getting a world record this morning.

27 ELINOR 27
A world record?

28 ARI 28
Yup, I'm trying to build the TALLEST block tower in the world.

Ari raises one arm up as high as he can.

29 ELINOR 29
Ooooh.

30 OLIVE 30
Oh! Mz. Mole said we are going to see some TALL trees today for our field trip.

31 ARI 31 *
Really? I love tall things. How tall do you think the trees will be?

The kids think for a moment. Olive points to a nearby tree.

32 OLIVE 32 *
The trees in the playground are already pretty tall. They're taller than the school. *

33 ELINOR 33
 Maybe the trees on our field trip
 will be even taller. Taller than my
 house! *

We see a thought bubble with the tree from the schoolyard,
 compared to the school. Elinor's house appears and the tree
 pops and stretches to surpass its height. *

34 ARI 34
 That's pretty tall.

35 OLIVE 35
 Or maybe, they'll be as tall as the
 town hall tower!

In the thought bubble, we see the tree stretch up and the
 town hall tower appears next to it.

36 ARI 36
 Whoa, now that would be TALL.

Elinor looks puzzled.

37 ELINOR 37
 Hmmm, I never thought about it
 before. I wonder how tall a tree
 can get? *

At that moment, the bus gets started, and Mz. Mole calls them
 in. *

38 MZ. MOLE 38
 Alright, class! Who's excited about
 going on a field trip??

The kids all shout positively <SFX: YEAH! WOO HOO! WALLA>.

39 MZ. MOLE (CONT'D) 39
 Well, hop on board!

The kids excitedly pile into the bus. As they climb up, they
 say hi to the conductor, DEPUTY MOUSE. *

40 DEPUTY MOUSE 40
 Good morning, kids!

41 ELINOR/ARI/OLIVE 41
 Hi, Deputy Mouse!/ Good morning
 deputy mouse! / Hello! *

3. SCHOOL BUS - DAY

Inside, the three kids find their seats. Ari immediately opens his lunchbox.

42	ARI	42	
	Yes! Time for my bus snack!		
43	MZ. MOLE	43	
	Ok, Deputy Mouse, are you ready to drive us... back to school?		*
	The kids react in outrage.		
44	ARI/OLIVE/ELINOR	44	*
	No!/We're already at school!/Mz. Mole!		*
	Deputy Mouse and Mz. Mole <SFX: CHUCKLES>.		*
45	MZ. MOLE	45	
	Just kidding! Deputy Mouse, please drive us to... the dentist!		
	More outrage. <SFX: NO!/NOT THE DENTIST!/MZ. MOLE! WALLA>.		
46	ELINOR	46	*
	Mz. Mole! Field trips are supposed to be fun!		
47	MZ. MOLE	47	
	Ha ha. Just some old teacher silliness. No, today we are going to see something VERY SPECIAL. It's a very tall kind of tree, called a Sequoia.		
48	OLIVE	48	
	Sequoia. I like that word!		
49	ARI	49	*
	How tall is a Sequoia, Mz. Mole? Is it taller than the town hall tower?		*
50	MZ. MOLE	50	
	Why it's the tallest tree IN THE WORLD!		
	The kids <SFX: OOH/AHH/YAY!>.		
51	DEPUTY MOUSE	51	
	One Sequoia forest, coming right up!		

Deputy Mouse gets the bus going (SOUND NOTE: it purrs quietly, as it runs on green energy). *

4. EXT. ANIMAL TOWN AND BEYOND -- DAY

We see the bus roll out of Animal Town and over different landscapes. Slowly, the vegetation starts to look slightly different and more like Northern California, near the Sequoia forest. As the bus rolls along, we have a musical montage of the kids playing (while staying seated), eating their snacks, reading, looking out the window, etc. *

5. EXT SEQUOIA GROVE -- DAY

The bus pulls up amid a grove of tall, thick trees (~1.5 times the height of the trees from their school, not giants yet). Elinor, Olive and Ari (polishing off an apple) get out and <SFX: OOH and AHH>. *

52 OLIVE 52
Wow, these trees are so tall!

53 ARI 53
They are much taller than our trees at home. They're soooooo tall. *

54 MZ. MOLE 54 *
Alright everyone. Who is ready to see some tall trees?

55 ELINOR 55
Huh? Aren't these the tall trees we came to see?

56 MZ. MOLE 56 *
Ha! These are pretty tall, but they are just BABY Sequoia trees. The really tall trees are the ones in the forest!

The kids <SFX: WHOA, OOH and AHH>. *

57 ARI 57 *
If these are the baby trees, how tall are the grown-up trees? *

58 MZ. MOLE 58 *
Follow me to the giant Sequoias!

They go for a little walk through the sequoias, enjoying the cool ferny climate, which is foresty but also different from home. We see Elinor and other kids happily looking around. *

They arrive at a small clearing, where there are some tall trees bigger than the first trees they saw. They have wide trunks, but the kids can see the tops of them from where they are.

59 OLIVE 59
Mz. Mole, are *these* the tall
sequoia trees?

60 ARI 60
They must be! Look how tall they
are.

61 ELINOR 61
Whoa... I think they're taller than
the town hall tower.

On a wide view, we see that the trees are indeed several storeys high.

62 MZ. MOLE 62
Nope! These are still young Sequoia
trees. Let's keep going!

The kids <SFX: WHOA... WALLA> as they keep walking.

Finally, they arrive at the main clearing. At first, the kids (in the show and at home), can't tell they are next to a giant sequoia because it's SO big that the base of it fills a whole side of the screen on a medium shot.

Mz. Mole stretches her arms out.

63 MZ. MOLE (CONT'D) 63 *
Here we are, kids! What do you
think? Pretty tall, right?

The kids look around, a bit confused <SFX: HUH?/WHERE ARE THE TREES? WALLA>.

64 ELINOR 64
Where are the big trees, Mz Mole?

65 MZ. MOLE 65 *
Right here! You're standing right
next to one of them!

The camera pulls out to reveal that they are at the base of a giant sequoia.

66 ARI 66
That's a tree? I thought it was
part of the mountain. *

67	ELINOR	67	
	No, it is a tree. Look up!		
	The kids look up. The tree is SO tall, they can't even see the top.		
68	OLIVE	68	
	SO... MUCH... TREE!		
	Olive is in love. The kids are all astonished.		
69	ARI	69	
	Now THAT is a tall tree!		
	Elinor looks curious.		
70	ELINOR	70	
	Mz. Mole, I have a question.		
71	MZ. MOLE	71	*
	Yes, Elinor?		*
72	ELINOR	72	
	How tall is this tree? I can't even see the top.		
73	OLIVE	73	
	Yeah, without seeing the top, we can't tell how tall it is.		
74	ARI	74	
	That sounds like a job for everyone's favorite bat. <pause>		
	I'm talking about me. I'll fly up there and check out the top!		*
			*
	Ari takes off flying.		
75	MZ. MOLE	75	*
	Be careful up there, Ari!		
	We see Ari fly up... And up... And up. He passes some birds and keeps going... Up... and up... He goes through a small cloud... and keeps going! Finally, he gets to the very top. On a super wide shot, we get a full view of the scale of the tree. It's about 300ft (90m) tall.		
76	ARI	76	*
	(out of breath)		*
	Wowwwwww.		
	Ari looks at the top of the tree, then down to see his tiny class. There's a short breeze, and his hat blows off and falls down.		*

77	ARI (CONT'D)	77	
	My hat!		
	We follow the hat down, down, down...		
	The hat lands on Mz. Mole, followed shortly by Ari.		
78	ELINOR	78	
	How tall was it, Ari?		
79	ARI (OUT OF BREATH)	79	*
	It's so tall! It wasn't as wide at		*
	the top, though. It got thinner.		*
80	OLIVE	80	
	It took your hat FOREVER to fall		
	down.		
81	ELINOR	81	
	Is it higher than the town hall		
	tower?		
82	ARI (STILL OUT OF BREATH)	82	*
	Way higher! I passed some birds on		
	the way up!		
83	OLIVE	83	
	Is it taller than the clouds?		
84	ARI (CATCHING HIS BREATH)	84	*
	I had to fly THROUGH a cloud to get		
	to the top.		
	The class kids all <SFX: OOOH WALLA>.		
85	OLIVE	85	
	What was it like?		
86	ARI	86	
	(thinks for a beat) Mmm... cloudy.		
	The kids <SFX: GIGGLE>. Elinor looks up, curious.		
87	ELINOR	87	
	I wonder... Why is this tree so		
	tall?		
88	OLIVE	88	
	Maybe it was planted by a giant?		
	(Thought bubble of giant Olive planting a giant tree).		

89	ARI	89	
	Or maybe it got stretched out by some birds?		
	(Thought bubble of birds pulling on a tree).		
90	ELINOR	90	*
	Those are interesting ideas. I know, maybe it ate and drank a lot of water.		
91	ARI	91	*
	Wow. I don't think I could eat THAT many snacks.		
92	MZ. MOLE	92	*
	Actually, you're right, Elinor! This forest is perfect for these trees to grow in. They have just the right amount of air, water, sun and food so they just keep growing and growing.		* *
93	OLIVE	93	
	Forever?		
94	MZ. MOLE	94	*
	Some of these trees, like this one, are THOUSANDS of years old.		
	General <SFX: WHOAAA>.		
95	OLIVE	95	
	That's older than my mom.		
96	MZ. MOLE	96	*
	Ha! Yes, by quite a bit.		
97	ELINOR	97	
	Mz. Mole, does that mean that WE will also keep growing and get really tall like these trees?		* *
98	MZ. MOLE	98	*
	Don't I wish! No, animals like you and me stop growing at some point.		* *
	Olive goes up to the tree.		*
99	OLIVE	99	
	Look how wide the tree is here at the bottom. I wish I could hug it like I do our trees at home.		* *

Olive tries hugging the tree.

100 ELINOR 100
I'll help you, Olive!

101		ARI	101
	Me too!		

One by one, the class joins in, linking arms and making a
circle around the tree <SFX: ME TOO! YEAH! WALLA JUST ARI,
OLIVE, and ELINOR?>.

[illegible]

The kids form a circle, linking hands. Finally it takes the whole class including Mz. Mole. All the kids <SFX: GIGGLE> and enjoy this magical moment.

103 ELINOR 103

Wow. Why is the bottom of the tree
so WIDE, Mz. Mole?

104	MZ. MOLE	104	*
	Hmmm, good question, Elinor. What		
	do you think would happen if the		
	tree was thin from the very bottom		*
	to the top?		*

The kids think about that for a beat <SFX: HMMM>. Ari leans back against a little sapling, which bends under his weight.

105	ARI	105	
	Woah! This little tree is really		*
	bendy.		

Elinor curiously tries bending the tree a little. Then she has an idea. She runs over to the base of the giant tree, pushes on it. It's rock solid.

106	ELINOR	106	
	I know! If the tree was thin at the		*
	bottom and all the way up, it would		*
	be really bendy. And then it		
	wouldn't be able to stay up so		
	tall.		

On a thought bubble, she imagines a really thin tall tree.
The tree bends completely over.

107 ARI 107
It would fall over, just like my
block tower!

108 OLIVE 108
I get it. So the tree has to be *

wide at the bottom so that it can *

be really tall at the top.

109 MZ. MOLE 109
That's exactly right, clever
scientists! Being really wide at
the bottom helps trees be really *

tall without falling over.

On their realization, the kids sing a song to recap:

110 ELINOR/ARI/OLIVE 110

Sequoias grow up, up, up
Into the sky
Sequoias grow big, big, big
We wonder why

How do these trees
Grow so tall
When the wind blows
Why don't they fall?

These trees are wide *
down on the ground *
That really helps *
them not fall down! *

Sequoias grow up, up, up
Into the sky
Sequoias grow big, big, big
Tall and wide

As the song ends, the kids marvel at the tree and run around
the base of it <SFX: GIGGLING and LAUGHING WALLA>. We fade *

6. INT ARI'S KITCHEN -- DAY

Ari comes in the door, bubbling with excitement.

111 ARI 111
I'm home!

His father is feeding Miri.

112 MR. BAT 112
How was your field trip?

113	ARI	113	
	Oh wow, it was awesome. We saw the tallest trees in the WORLD.		*
114	MR. BAT	114	
	Wow. Taller than me?		
115	ARI	115	
	SO much taller than you. And it was also really wide at the bottom.		*
			*
116	MR. BAT	116	
	Hmm. Wider than me?		
117	ARI	117	
	A little bit.		
	They <SFX: LAUGH>.		
118	ARI (CONT'D)	118	
	But that gave me an idea for how to build my block tower. Miri, wanna help me?		*

7. INT ARI'S LIVING ROOM / KITCHEN

In a call back to the opening scene, we see Ari holding up Miri as she places the last block carefully. We pull out and see that Ari is also being held up by Mr. Bat. Miri places the block on a VERY TALL (~20 blocks) tower that is wider at the base.

119	ARI	119	
	Just like the tree, if you want to be tall, it helps to be wide at the bottom.		
	Miri <SFX: GIGGLES>.		
120	ARI (CONT'D)	120	
	Thank you, Miri!		
	They stand back and admire the tower.		
121	MR. BAT	121	
	Nice job, Ari. But you know, the most fun thing about building a tall tower is...		
122	ARI	122	
	Making it fall down!		

Miri knocks the tower over and they all <SFX: LAUGH>.

END

*