

ELINOR WONDERS WHY

EW126A: BIG TREES

Written by

Jorge Cham and Daniel Whiteson

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).

FIRST DRAFT: October 18, 2019

SECOND DRAFT: November 13, 2019

POLISH: December 9, 2019

RECORD DRAFT: December 17, 2019

1. INT ARI'S LIVING ROOM / DAY

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?).

Ari narrates to himself like a golf commentator.

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

He slowly readies to place the first block.

2 ARI (CONT'D)
... this will officially be the
tallest block tower...
(forgets and yells)
...IN THE WORLD!
(remembers)
Oh shhhh, right, need to whisper
and concentrate.

He gingerly places the block.

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

The tower teeters for a moment.

4 ARI (CONT'D) 4

Uh oh.

But the tower doesn't fall.

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

He reaches out to place the next block. <SFX: MIRI OFFSCREEN
BABY COOING>

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

6

ARI (CONT'D)

6

Hi Miri. Be careful, I'm trying to build the tallest block tower in the world.

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

ARI (CONT'D)

8

Uh oh.

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.

The class kids are gathered outside the school where a school bus sits waiting for everyone to arrive. Ari arrives carrying his lunchbox. His friends ELINOR and OLIVE are already there, hanging out by a nearby tree. The two girls have their arms wrapped around the tree, linking hands and <SFX: GIGGLING> as Ari walks up to them, eating his morning snack.

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 Ooooh. ELINOR 29

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??

38A

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!

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

43 MZ. MOLE 43
Ok, Deputy Mouse, are you ready to
drive us... back to school?

44 ARI/OLIVE/ELINOR 44
No!/We're already at school!/Mz.
Mole!

45 MZ. MOLE 45
Just kidding! Deputy Mouse, please
drive us to... the dentist!

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

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?

63A 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.

76 ARI 76
 (out of breath)
 Wowwwwww.

THOUGHT BUBBLE: we see Ari up close then TRUCK OUT to this one tree at full scale and in doing so we see how tiny Ari is in comparison as he flaps his wings near the top.

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 drank a lot of water.	
91	ARI <i>that even I</i>	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
	Wow, that's super-old.	
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?>.

102 MZ. MOLE 102
Ha ha, I love it!

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, all of us can barely reach around. 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

I get it. So the tree has to be
wide at the bottom so that it can
grow really tall.

108

109

MZ. MOLE

That's exactly right, clever
scientists! Being really wide at
the bottom helps trees be really
tall without falling over.

109

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

110

ELINOR/ARI/OLIVE

110

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

How do those 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
Into the sky
Sequoias grow big, big
We wonder why
Se-quo-ias!

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

6. INT ARI'S KITCHEN -- DAY

Ari comes in the door, bubbling with excitement.

111

ARI

I'm home!

111

His father is feeding Miri.

112

MR. BAT

How was your field trip?

112

7. INT ARI'S LIVING ROOM / KITCHEN

116 ARI 116
Just like the tree, if you want
something to be tall, it helps to
be wide at the bottom.

117 ARI (CONT'D) 117
Thank you, Miri!

118 MR. BAT 118
Nice job, Ari. But you know, the
most fun thing about building a
tall tower is...

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

1. EXT FOREST -- WINTER DAY

Open on Señor Tapir, with his guitar, standing in the snow next to Elinor, Ari and Olive.

Everyone is wearing winter coats and hats. They all marvel at a youngish pine tree (not much taller than Sr. Tapir) that is bent over to the ground by the weight of the snow covering it.

120 OLIVE 120
Señor Tapir, look at that little
tree bent over by the snow.

121 ARI 121
It looks like it's going to break.

122 SEÑOR TAPIR 122
Oh, don't worry. These trees can
bend without breaking. An explorer
named John Muir once climbed a very
tall tree in a storm, to feel how
much it could bend.

Señor Tapir starts to strum his guitar and sings. After a few words, we transition to a simpler style of animation that describes what he is singing. [Note to composers: if possible, reuse music from Stephen Bishop interstitial, this is written to match the rhythm and rhyming scheme of that song]

123 SEÑOR TAPIR (CONT'D) 123
John Muir was a man who loved to
explore,

2. EXT CALIFORNIA MOUNTAIN FOREST -- DAY

We see John Muir (depicted as a black bear with a beard and wearing a traveler's hat, brown slacks, a brown vest over a white long-sleeve collared shirt) hiking through a California mountain forest full of very tall pine trees.

124 SEÑOR TAPIR 124
He felt right at home in the great
outdoors.

So he went for a walk where the
trees grew wild and free.

The wind begins to blow very strong. John Muir's hat blows off and his beard blows sideways. Bits of twigs, leaves and pine needles fly through the air. He looks up at the trees which begin to sway wildly.

125 SEÑOR TAPIR (CONT'D) 125
And whoah the wind really started
to blow,
(MORE)

SEÑOR TAPIR (CONT'D)

And that's when John wanted to know

How it feels at the top of a
swaying tree.

John climbs up a 100 foot tall Douglas Fir (Douglas Spruce) tree to the very top. A rope around his waist is tied to the tree trunk at the top for safety. The tree sways back and forth, nearly half way to the ground, taking John for a very wild ride. Back and forth, back and forth - John is loving it.

126

SEÑOR TAPIR (CONT'D)

126

He climbed a tree to the tippity
top.

And didn't come down til the wind
had stopped.

Just holding on tight and loving
the way,

The tree would bend...but would not
break.

As he sways, John looks out over the mountain slopes as the wind rolls over the forests. It looks like a grand field of wheat swaying in the wind, only it's trees.

One hundred feet high swinging in
the breeze,

John Muir was amazed by the other
trees,

He watched them move and bend and
sway.

Trees are strong but can bend too.

And only John Muir really knew,

What it was like to be a tree on
that stormy day.

The tree sways back and forth, nearly half way to the ground, taking John for a very wild ride. John is loving it.

127

SEÑOR TAPIR (CONT'D)

127

He climbed a tree to the tippity
top,

And didn't come down til the wind
had stopped.

Just holding on tight and loving
the way,

The tree would bend...but would not
break.

3. EXT FOREST -- WINTER DAY

The kids <SFX: CHEER> as Señor Tapir finishes his song.

128

ELINOR

128

Trees are amazing!

129

SEÑOR TAPIR

129

Si. Gracias amigos.

Señor Tapir brushes the snow off the pine tree, and it
suddenly springs upright, showering Señor Tapir with snow
<SFX: WHAAA!> . Everyone <SFX: LAUGHS>.

END.

129A