

ELINOR WONDERS WHY

EP 128 Syrup Tree
By: Jorge Cham and Daniel Whiteson

Elinor's Question: Why do trees make sap?

Logline: The kids learn what tree sap is and help Farmer Bear make enough maple syrup for Pancake Day.

Curriculum Goals:

LS2b 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. [The kids learn that trees use sap to move stuff around inside.]

ET1b Define a simple problem that can be solved through the design of a new or improved tool or technology [The kids design an improved delivery system]

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. [The kids use the branching-tree structure as inspiration for the branching-stream sap delivery system.]

SEP1d: Identify a problem that can be solved by the design a new or improved object or tool [Need a new pouring system for the syrup.]

LINE COUNT: 129

MAINS: Elinor, Olive, Ari, Farmer Bear

LOCATIONS: Sugar Shack (interior and Exterior), Maple Grove

PROPS: Wagon, barrel, spiles, juice box with straw, almanac, kettle, ladle, syrup bottles, Syrup delivery system (made by Sally) pancakes

OUTLINE: Apr 2, 2019
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It's a bright, late winter morning in Animal Town, and several families have gathered at Farmer Bear's farm for a community event called Pancake Day. We see kids running around and parents chatting (including the Rabbits and others). ELINOR, ARI and OLIVE are walking around and talking excitedly about the day.

OLIVE

2 Yeah, Ari. I love Pancake Day. Mrs. 2
 Gorilla makes the best pancakes.

ELINOR
3 Mmm, I can't wait to eat a big stack of them. 3

4 ELINOR (CONT'D) 4
I'm going to eat THIS many
pancakes.

OLIVE
5 Yeah, Elinor? Well, I'm going to 5
 eat THIS many pancakes.

ARI
6 Well, Olive, I'm going to eat THIS many! 6

The kids continue walking, and we see several animals helping set up the tables and bring out plates.

ELINOR

7 It's great that everyone is helping 7
 out for Pancake Day.

We pan over to see SALLY BEAVER and MRS. BEAVER cranking out wood furniture amazingly quickly.

ARI

8 There's Sally Beaver and her mom 8
 making tables and chairs for
 everyone.

OLIVE

9 They are SO good at that. 9

ELINOR

10 It's amazing! 10

Olive looks around.

OLIVE

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11          And it's great of Farmer Bear to          11
            have Pancake Day here in her farm.

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ARI

12 Yeah, where IS Farmer Bear, anyway? 12
I haven't seen her.

The kids look around for a beat.

ELINOR

13 I don't know. Let's go ask my mom. 13

The kids walk over to Ranger Rabbit, who's chatting with some other animals.

ELINOR (CONT'D)

14 Hi, Mom! 14

RANGER RABBIT

15 Oh, hi, Elinor. 15

ELINOR

16 Have you seen Farmer Bear? 16

Ranger Rabbit looks around thoughtfully.

RANGER RABBIT

17 Oh. She's probably off making the 17
syrup for the pancakes.

OLIVE

OLIVE
18 She's making the syrup? 18

19 ARI 19
 Whoa, you can make syrup?? I
 thought you just got it at the
 store!

20 RANGER RABBIT 20
 <BENIGN CHUCKLE> Well, somebody has
 to make the syrup, Ari. Syrup is
 made from maple trees. Farmer Bear
 has a grove of them right over
 there.

She points to a nearby grove of maple trees and the kids look over. Ranger Rabbit goes back to her conversation.

21 OLIVE 21
 Huh, I never thought about where
 syrup comes from.

22 ELINOR 22
 Yeah, it comes from trees? That is
 SO interesting!

Ari has an idea.

23 ARI 23
 Let's go check out the syrup trees.
 Maybe we'll find Farmer Bear there!

Elinor gets excited.

24 ELINOR 24
 Yeah, we need MORE observations!

2. EXT. MAPLE TREE GROVE - DAY

The kids run across the farm and enter the maple tree grove. Olive looks around a bit.

25 OLIVE 25
 Hm, I don't see Farmer Bear
 anywhere.

Elinor is curiously studying a maple tree.

26 ELINOR 26
 Hmmm... My mom said that syrup is
 made from these trees, but I don't
 see where it comes from.

Olive and Ari join in her curiosity.

OLIVE

27 You're right... Maybe the syrup
comes from a fruit that the tree
makes? 27

28 ELINOR 28
Maybe... but none of the trees here
have any fruit.

The kids look at the trees around them, and none of them have any fruit.

29 ELINOR (CONT'D) 29
Maybe they make the syrup from the
leaves of the tree?

30 OLIVE Hmmm, but none of the trees have any leaves either. 30

The trees are all leaf-less. Ari joins in.

ARI
31 Maybe the syrup comes from the tree 31
 itself! There's only one way to
 find out...

He walks over to the tree and... licks it.

Ari! OLIVE

32 32

Ari processes the taste, smacking his lips. After a beat, he makes a face.

ARI
33 Nope, the tree doesn't taste like 33
 syrup.

The kids <GIGGLE>. Ari rolls the taste in his mouth.

ARI (CONT'D)

34 Hmm, now my mouth tastes like tree 34
 bark.

35 OLIVE Do you want to go back and get some water, Ari? 35

ARI
36 Nope, I have just the thing. I have 36
 an emergency juice box!

He pulls a juice box out of his pocket and opens it so the straw is sticking out. He slurps noisily. <SFX: SLURPING>. We get a clear shot of juice flowing up the straw.

ARI (CONT'D)
37 Ahhh... that's better. 37

OLIVE
38 <GIGGLES> Ari, you're always so prepared. 38

ELINOR
(still looking at the
tree)
39 Hmm, where does the syrup come from? 39

At that moment, FARMER BEAR rolls up with a wagon and a big pot.

	FARMER BEAR	
40	Oh, hello kids!	40

41 ELINOR
Hi, Farmer Bear! 41

OLIVE
42 We were looking for you! 42

43 FARMER BEAR Oh? How come? 43

OLIVE

44 We heard you were making syrup, and 44
we wanted to see how you did it.

ARI
45 Yeah, do you need help tasting it? 45
 I'm an EXPERT syrup taster.

Ari licks his lips. Farmer Bear smiles.

FARMER BEAR

46 Well, first we have to MAKE the 46
syrup, Ari. And that's why I'm here
in this tree grove.

47 ELINOR 47
Yeah, we heard that syrup comes
from these trees, but we can't
figure out how. We don't see any
fruits or leaves.

OLIVE

48 And the trees don't taste like 48
 syrup. Ari tried it.

ARI
49 It doesn't taste like syrup *at all*. 49

Farmer Bear <CHUCKLES>.

FARMER BEAR

50 Well, that's because the syrup 50
doesn't come from anything ON the
trees. It comes from what's INSIDE
the trees.

The kids go <OHHHH>.

51 FARMER BEAR (CONT'D) 51
Come with me, I'll show you.

The kids follow Farmer Bear as she pulls the wagon deeper into the tree grove.

3. EXT. DEEPER IN THE MAPLE GROVE - DAY

The kids and Farmer Bear stop at a point deeper into the grove. Many of the trees are tapped and their sap is dripping into buckets.

ARI
52 What's that watery stuff coming out 52
 of the trees?

FARMER BEAR

53 That's what we make maple syrup out 53
 of. Watch.

The kids are astounded. Farmer Bear takes a spile and a mallet and taps it into a nearby maple tree that doesn't have any buckets. As the kids look closer at it, Farmer Bear grabs a bucket from her wagon and props it under the spile. After a few beats, clear tree sap starts dripping down.

54 ELINOR Whoa, there's watery stuff inside the tree. 54

OLIVE

55 Wow, I didn't know trees had that 55
 inside.

FARMER BEAR
56 That's right! It's like tree juice. 56

ARI
57 Ooh, I like juice! I've had apple juice, and orange juice and grape juice-- 57

Ari takes a sip of his juice box.

FARMER BEAR

58 Thank you, Ari. But this juice is a 58
 little different because it comes
 from INSIDE the tree, not from any
 fruit. We call it "tree sap."

Olive looks closer at the spilet.

59 OLIVE Does that hurt the tree? 59

60 FARMER BEAR
Not if you just make a little hole. 60

61 ELINOR Farmer Bear, why do trees have tree sap inside? 61

62 FARMER BEAR
Good question, Elinor. Trees use
tree sap to move water and sugar to
all the different parts of the
plant. Here, I think I have a
picture in my almanac.

Farmer Bear rummages a bit in her wagon and pulls out a book with a little globe on the cover. She opens it up and shows the kids a page with a simple x-ray visual of the INSIDE of the tree, with sap moving and going to all of the branches.

FARMER BEAR (CONT'D)

63 See? The tree sap brings water and 63
sugar to all the parts of the tree.

64 Whoa... ARI 64

Ari takes another sip of his juice box.

65 ELINOR
But Farmer Bear, how does the tree juice move inside the tree? 65

66 FARMER BEAR
Another great question! 66

Farmer Bear turns the page, and we see a close up of the inside of a tree, showing simplified tree xylem cells (ref: <https://www.dropbox.com/s/ih9sbjqc75blhw2/xylem1.jpg>).

67 FARMER BEAR (CONT'D) 67
Trees have tiny little tubes inside
that carry the tree sap everywhere
in the tree.

68 ELINOR 68
Oh! They look like the straw in
Ari's juice box!

They all look appreciatively at Ari's juice box.

69 ARI 69
Wow, look! I'm a tree! <SLUURRP>

The kids <GIGGLE>. Farmer Bear closes the almanac.

70 FARMER BEAR 70
That's right. Trees are more than
just the leaves and fruit. There's
a lot happening *inside* of them,
too. Now, who wants to help me
gather all this tree juice?

71 ELINOR 71
Me!

72 ARI 72
Yeah!

Over a quick montage, the kids help Farmer Bear bring the sap buckets to the wagon and pour the tree juice into the pot. Soon, they are all done, and Ari empties the last bucket into the pot. He eyes the last few droplets.

73 ARI (CONT'D) 73
Can I try the tree sap, Farmer
Bear?

74 FARMER BEAR 74
Sure, go ahead, Ari.

Ari puts a drop on his finger and tastes it.

75 ARI 75
It tastes like water. With maybe a
tiny bit of syrup flavor.

Olive and Elinor try it too.

ELINOR

76 But Farmer Bear, this tree sap is watery and not very sweet. How do you make syrup out of it? 76

FARMER BEAR

77 Well, it's time to head to the 77
Sugar Shack to find out!

The kids follow Farmer Bear as she pulls the wagon back towards the farm.

4. INT BACK OF FARMER BEAR'S BARN - DAY

Farmer Bear leads them to a small, open structure at the back of the barn. Inside are two big kettles. One of the kettles is empty and stands over fresh logs. The other one looks like it cooked for a while, and the logs are now burned out.

78 FARMER BEAR 78
Welcome to my Sugar Shack! This is
where we turn the tree juice into
syrup.

She pours the newly collected sap into the empty kettle and lights a fire. (If fire is a problem, we can set the kettles on a stove).

FARMER BEAR (CONT'D)

79 We cook it for a long time, and 79
that makes it thicker and thicker,
and sweeter and sweeter, until--

80 ELINOR It turns into delicious syrup! 80

FARMER BEAR

81 That's right. This one cooked for a 81
 long time. I turned it off this
 morning so it would cool down.

Farmer Bear points to the kettle with the ready syrup.

ARI
82 Is it ready yet? Should I taste it? 82
You know, just to check.

Farmer Bear takes out a ladle and scoops some up. She brings it up to inspect it, and we see up close that it is thick and golden colored.

83 FARMER BEAR
I think it's ready! 83

RANGER RABBIT (CONT'D)

Mrs. Gorilla has just about finished making the pancakes, and she wants everyone to eat them while they are hot.

FARMER BEAR

95 Oh, um... But we haven't finished pouring the syrup into the bottles. 95

OLIVE

96 Uh oh. It's going to take a long time. 96

FARMER BEAR

97 Maybe we should eat the pancakes without syrup this year? 97

The kids look shocked and exclaim in unison:

OLIVE/ARI/ELINOR

98 PANCAKES WITHOUT SYRUP? 98

FARMER BEAR

99 Oh my. 99

ELINOR

100 That's like having toast without butter. 100

OLIVE

101 Or a sandwich without lettuce! 101

ARI

102 Or a pickle without peanut butter! 102

Everyone looks at Ari, who shrugs.

ARI (CONT'D)

103 I like pickles with peanut butter. 103

RANGER RABBIT

104 Let's focus on the syrup. Can we help you get it into bottles? 104

FARMER BEAR

105 I don't know. I only have one spoon. 105

ELINOR

106 Can we dip the bottles into the syrup instead of pouring it? 106

RANGER RABBIT

107 Hmm, then the sides of the bottles 107
 will get sticky with syrup.

OLIVE

108 Can we tip the kettle over and pour 108
it into the bottles?

FARMER BEAR

109 That would make a mess! We'd all 109
 get covered in syrup.

ARI

110 Would that be so bad? I'm just 110
 saying...

The bottles are arranged spread out across the table. Suddenly, Elinor has a flash of inspiration. In a THOUGHT BUBBLE, she remembers the x-ray view of the tree from before, and how the tree sap spreads out to all of the branches on the tree. She superimposes that on the kettle and bottles (kettle=base of tree, bottles = tips of the branches).

ELINOR

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111          Wait! I think I have an idea!          111
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She runs off and after a few moments comes back with Sally Beaver and her mom. They huddle to confer.

ELINOR (CONT'D)

112 Ok, here's what I'm thinking. 112

Elinor draws something on a sheet of paper. Sally and her mom nod.

They take some logs and Sally Beaver and her mom whip up a delivery system for the maple syrup. It consists of u-shaped channels that branch out from a central channel. From the top, it looks just like the x-ray of the tree.

ELINOR (CONT'D)

113 Farmer Bear, I think this will help 113
us fill lots of bottles all at
once!

FARMER BEAR

114 Wow, Elinor, where did you get that 114
 idea?

ELINOR

115 From the trees! They move the tree sap to all the parts of the plant by spreading it out!

115

116 FARMER BEAR 116
Great idea, Elinor! Let's try it!

MUSIC MONTAGE: The kids sing as they put the bottles in place at the ends of the branching channels and Farmer Bear pours syrup into the base of the new system.

117 ELINOR/OLIVE/ARI 117
Fill the bottles up
Fill them up with syrup!
We need a lot
So everyone gets enough!

118 118
Pour it in the top
And watch it move out
Just like a tree
It all gets spread about

119 119
Fill the bottles up
Fill them up with syrup!
We need a lot
So everyone gets enough!

At the end of the song, they have filled all the bottles!

5. EXT FARMER BEAR'S FARM - DAY

Farmer Bear pulls a wagon filled with syrup bottles around to where everyone is seated. We see Mrs. Gorilla serving the pancakes.

120 FARMER BEAR 120
Who is ready for syrup?

A forest of hands go up, <CHEERING>.

121 ELINOR 121
Let's spread out the bottles!

The kids bring syrup bottles out to each table. Soon, everyone is eating happily. We see a montage of visual jokes: Gee Raffe is cutting up her pancakes, but her head is off screen, it's unclear how she will eat them! Silas finishes his pancakes in almost no time, zips off for seconds. Mz. Mole smells the pancakes and looks excited about eating them.

Finally, Ari and Olive and Elinor sit down to steaming piles of pancakes next to Farmer Bear and Ranger Rabbit.

122 OLIVE 122
I'm so ready to eat these pancakes.

123 ARI 123
 I hope these pancakes are ready for
 me!

124 ELINOR 124
 Ari, wait! Don't forget the syrup!

Elinor hands a bottle of syrup to Ari.

125 ARI 125
 Aww, thanks Elinor. You're so...
 SWEET!

They all <LAUGH> as the camera pulls up and we...

END