

ELINOR WONDERS WHY

EP# 114A Bubble House

By: Katherine Sandford

Elinor's Question: How can we make a bubble house like the spittle bug does?

Logline: Inspired by a spittle-bug Elinor, Olive and Ari decide to make a bubble house, but it's not as easy as they thought..

Curriculum Goals:

- LS5. Begin to understand that animals and plants depend on other living things and nonliving things in the environment to meet some of their needs:

- a. Distinguish between living and nonliving things based on background knowledge and

- b. Identify the habitats of familiar animals and plants in the environment

- c. Recognize that each kind of living things has a habitat that has resources to meet its unique needs (Elinor and her friends observe the spittle-bug's bubble house, notice how he makes it (by blowing bubbles) and learn why (to hide inside)).

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. [Elinor and her friends are inspired by the spittle bug's bubbles to make a bubble house of their own].

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

- 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 of a new or improved object or tool

(Elinor and her friends ask questions about the nature of bubble house and how it is made, then they replicate the method the spittle bug uses (blow lots of small bubbles) to make a bubble house.

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 the spittle bug, then design their own bubble house).

MAINS: Elinor, Olive, Ari, Ranger Rabbit

LOCATIONS: Forest near Elinor's; Elinor's back yard

PROPS: Spittle bug, magnifying glass, pail, bubble wands and lots
of BUBBLES

FIRST DRAFT: 22-May-19

SECOND DRAFT: 18-June-19

POLISH: 02-July-19

RECORD DRAFT: 09-July-19

1. EXT. FOREST NEAR ELINOR'S HOUSE - DAY

ON: ARI is trudging along, dragging a large branch behind him. We can see ELINOR, hopping around in the background, looking at different natural things with interest, she keeps hopping around until just after line 13.

OLIVE who is busy piling a low (ankle-height) row of leaves in a circle on the ground for the walls of her leaf house (mostly in her imagination).

ARI is walking backwards as he pulls a branch. He steps into Olive's leaf house and stops just before the branch drags through.

1	OLIVE	1
	(good-naturedly)	
	Careful, Ari. You almost dragged	
	your branch through the wall of my	
	leaf house.	

She points at the leaves.

2	ARI	2
	Whoops. Sorry about that, Olive. I	
	need it for my stick house. I'll	
	just get this out of... uugh, urgh.	

He tries to back up with his branch, but it's awkward.

3	OLIVE	3
	(giggling)	
	You <i>could</i> just use the front door.	

Olive smiles, gesturing to a gap in the leaves.

4	ARI	4
	Oh, good idea.	

Ari pushes the branch away from the leaf house and over to the front door. After thinking about it for a second, smiles and knocks on the pretend door.

5	ARI (CONT'D)	5
	Knock, knock, knock.	

6	OLIVE	6
	(sing-song)	
	Who is it?	

7	ARI	7
	Ari.	

8 OLIVE 8
Ari who?

9 ARI 9
Ari sure it's me? Open the door and see.

Olive opens the pretend door.

10 OLIVE 10
(giggling)
Funnneee.
(making door sound)
Rrrr. Oh, hi, Ari! How nice to see you.

11 ARI 11
Nice to see you too, Olive. Would you mind if I dragged my branch through your leaf house?

12 OLIVE 12
Not at all. Let me open the back door for you. Rrrrrr.

Olive pantomimes opening the pretend back door (another gap in the leaves) and Ari drags his stick through.

13 ARI 13
Love what you've done with the place.

14 OLIVE 14
Thanks. Stop by any time.

WIDEN: Ari sets his branch in place close to where Elinor is looking around.

15 ARI 15
My stick house is gonna be AWESOME!
Have you figured out what you're going to make your house with, Elinor?

16 ELINOR 16
No... I'm still not sure...
(sees something)
Wait, what's this?

Elinor has spotted something on a nearby branch. She hops over for a closer look. <SFX: Ooooh WALLA> Olive and Ari approach.

17 ARI 17
What did you find?

Their curious friend points to her latest discovery.

18 ELINOR 18
Look! Bubbles...

SCIENCE CU: The kids gaze at a glob of bubbly foam resting on a nearby branch.

19	OLIVE	19
	How did bubbles get on a tree?	

20 ARI 20
Maybe the plant's washing its
hands.

21 ELINOR 21
Or maybe it's taking a bubble bath.

Just at that moment the bubbles wiggle a little.

22 ARI 22
 <GASP!> Did those bubbles just
 WIGGLE??

The bubbles move again.

23 OLIVE 23
How can bubbles move on their own?
They aren't alive, are they?

24 ELINOR 24
Hmmm... We need MORE observations!

Olive takes the magnifying glass out of her satchel and they all look through.

MAGNIFYING GLASS POV: the bubbles move again then a little
SPITTLE BUG crawls out.

<https://www.nytimes.com/2019/02/19/science/spittlebugs-bubble-home.html>

25 ARI 25
 <GASP!> A BUG!

26 OLIVE 26
It was INSIDE the bubbles. That's
what made them move.

27 ELINOR 27
(excited)
That is SO INTERESTING!

The spittle bug hears Elinor's voice he retreats back into his bubbles.

28 ELINOR (CONT'D) 28
Uh-oh, the bug's gone back in his
bubbles. Bye-bye bug.

26 At that moment RANGER RABBIT calls from the yard nearby. 26

29 RANGER RABBIT 29
 (calling)
 Hey kids! Who's ready for some
 snacks?

<SFX: EXCITED YEAH WALLA> The kids run, hop and flutter OS.

2. EXT. ELINOR'S BACK YARD -- DAY

The kids rush into the yard.

30 ELINOR 30
Mom! Mom! You'll never guess what
we found!

Ranger Rabbit has laid out the snacks (veggies sticks, sandwiches and water in cups with paper straws).

31 RANGER RABBIT 31
Something exciting, I can tell.

32 ELINOR 32

There were these bubbles on a tree
and then we saw a BUG inside the
bubbles!

They dive in and start <SFX: MUNCHING> on the snacks. Ari
<SFX: SLUUUURPS> his water through a straw.

33 ARI 33
 (to himself)
Mmmmmm. Slurpy.

34 RANGER RABBIT 34
Sounds like you found a spittle
bug, Elinor.

35 ELINOR 35
A spittle bug?

36 RANGER RABBIT 36
It's a bug that makes itself a
little house of bubbles and hides
inside.

37 ELINOR 37
Yes! We saw the spittle bug hiding.
(To herself)
Whoa, wait...I wonder why it does
that?

38 ARI 38
Maybe it likes to eat the bubbles.

39 OLIVE 39
Maybe it's playing hide and seek.

40 RANGER RABBIT 40
Close, Olive. The spittle bug makes
its bubble house to hide from
creatures like birds and lizards
that might want to eat it. Animals
use all kinds of ways to stay safe
in Nature.
(she picks up a tray)
Well, enjoy your snacks.

Ranger Rabbit heads back into the house.

41 ELINOR 41
Wow... A bubble house... <GASP!>
I just had a bubbly idea! I'm gonna
make my house out of... BUBBLES!
Just like the spittle bug!

42 ARI 42
Cool! A bubble house! I want one
too!

43 OLIVE 43
Yeah, me too! (beat) Uh, but... how
do we make a bubble house?

44 ELINOR 44
Hmmm. I'm not sure but let's go
get my bubble stuff and see if we
can figure it out.

Elinor and Olive run off to get the bubble stuff, and Ari
stays behind to take one last <SFX: SLUUURRP> of his water
through his straw.

BUBBLE WIPE TO:

3. EXT. ELINOR'S BACK YARD - MINUTES LATER

Elinor and Olive come running out of the house with a small pail of soap and water and bubble wands.

45 OLIVE 45
Here we go.

Olive puts down the pail.

46 ELINOR 46
First we poured liquid soap into
this water, and now we mix it up.

Elinor stirs it with her bubble wand.

47 ELINOR (CONT'D) 47
Now we pull out the bubble wand
and... BLOW!

Elinor <SFX: BLOWS GENTLY>. Out pops a bubble.

48 ARI 48
 (amazed)
Cooooooooo!

49	OLIVE	49
	Can I try?	

50 ELINOR 50

Sure!

Olive grabs the wand with her trunk and <SFX: BLOWS HARD> and fails.

51 ELINOR (CONT'D) 51
Try blowing a little more gently.

Olive <SFX: BLOWS GENTLY> - and then blows a bubble.

ARI
That's an AWESOME bubble, Olive!

The kids watch it float away.

53 OLIVE 53
Thanks, Ari. Your turn.

Ari <SFX: BLOWS> a bubble.

54 ARI 54
I did it! I made a bubble!

55

ELINOR

55

(thinking)

But how do we make a whole *house* of
bubbles?

(declaratively)

Well, one thing we need for sure is
MORE BUBBLES!

So they dive in.

BUBBLE WIPE TO:

THE BUBBLE SONG

The kids are running around blowing bubbles as they sing.

56

ELINOR, OLIVE AND ARI

56

(singing)

Bubble, bubble, bubble,
We're gonna blow some bubbles.
Elinor: To build a Bubble House,
Olive: Like a Spittle Bug,
Ari: And then we'll get inside!

ELINOR: (spoken, sing-song) Let's
try blowing lots of little bubbles
and then put them together to make
the house.

ALL: Bubble, bubble, bubble,
We'll blow lots of baby bubbles.
Elinor: A whole pile of bubbles.
Ari: And try to get inside.

They run around trying to gather up individual bubbles and
get them to stick together, but they all <SFX: POP! POP!
POP!>

ELINOR: (spoken, sing-song,
laughing) That didn't work...
OLIVE: (spoken, sing-song, laughing)
Let's try again.
ARI: (spoken, sing-song, laughing)
Let's make one BIG bubble this
time.

Olive is bending the bubble wand to make it bigger - or maybe
putting two together.

ALL: Bubble, bubble, bubble,
Let's blow a big, big bubble.
(MORE)

ELINOR, OLIVE AND ARI (CONT'D)

Ari: A humongous bubble

Elinor: And try to get inside!

They blow the biggest bubble possible (it's not that big) but when Elinor touches it - it <SFX: POPS!>

ELINOR (spoken, laughing) That didn't work either,

ARI: (spoken, laughing) Now what do we do?

ALL: Bubble, bubble, bubble,
We blew lots of bubbles
But we couldn't build a house.
Like the Spittle Bug does.
To get inside.

BUBBLE WIPE

4. EXT. ELINOR'S BACK YARD -- LATER

Bubbles are floating around the yard and <SFX: POPPING>. One <POPS> on Olive's trunk. Olive and Ari <SFX: LAUGH>, but Elinor looks determined and puzzled. At that moment, Mom comes out the back door.

57	RANGER RABBIT	57
	How's the bubble building going?	
58	ARI	58
	Well the good news is - we blew a TON of bubbles! The not-so-good news is - we couldn't build a bubble house.	
59	ELINOR	59
	First we blew a lot of little bubbles, but we couldn't get them to stick together.	
60	OLIVE	60
	Then we blew a really ENORMOUS bubble but it popped when we tried to get inside.	
61	ELINOR	61
	(a little disappointed) I guess we'll never make a bubble house, and I really wanted one.	

Olive puts her hand on Elinor's shoulder.

62 OLIVE 62
Me too.

Ari puts his hand on Olive's shoulder.

63 ARI 63
Me THREE.

The three kids <SFX: SIGH> with disappointment.

64 RANGER RABBIT 64
HMMMMMM, so you wanted to make a
bubble house just like the spittle
bug did, and you tried to make it
using your bubble wands?

65 OLIVE 65
Yep, but that didn't work.

66 RANGER RABBIT 66
Well, did you observe how the
spittle bug makes its bubble house?

67 ARI 67
What do you mean, Mrs. Rabbit?

68 RANGER RABBIT 68
Sometimes to learn from Nature,
it's important to observe HOW an
animal does something, not just
WHAT they do.

69 ELINOR 69
I never thought about it that way
before. We saw the bubble house
that the spittle bug made, but we
never saw the spittle bug MAKING
the bubble house.
(energized)
We need even MORE observations!

5. EXT. FOREST NEAR ELINOR'S - DAY

The kids go back to the spittle bug tree.

70 ELINOR 70
There's the bubble house.

71 ARI 71
But where's the spittle bug?

72 OLIVE 72
It's probably inside.

73 ELINOR 73
Let's be really, really quiet and
watch closely.

[illegible]

ECU: At that moment the Spittle Bug comes out of the bubbles.

75 ARI (CONT'D) 75
 (excited, forgetting)
 There he IS!

Elinor and Olive good-naturedly <SFX: SHHH> Ari.

76 ARI (CONT'D) 76
 (whispering)
Whoops, sorry.

77 OLIVE 77
Let's see what he does.

Olive takes out the magnifying glass. MAGNIFYING POV: The Spittle Bug is blowing into the goopy liquid. NOTE the spittle bug blows the bubbles out of his abdomen rear.

78 OLIVE (CONT'D) 78
Look! He's making bubbles for his
bubble house.

79 ARI 79
But how? He doesn't have a bubble wand or anything.

SCIENCE ECU: The spittle bug blowing bubbles - we see the bubbles appearing one by one.

80 ELINOR 80

Ooooh. The spittle bug doesn't blow
bubbles into the air and then stick
them together. It blows right into
the goopy liquid to make the
bubbles!

81 ARI 81
Whoa... Foamy!

82 OLIVE 82

That makes lots of really tiny
bubbles already stuck together, and
they don't all pop when he crawls
inside...

BACK ON: Elinor, she has an idea.

83	ELINOR (the penny drops) That's IT! That's what WE should do. Come on!	83
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6. EXT. ELINOR'S BACK YARD - DAY

Elinor, Ari and Olive run back into the yard, where Ranger Rabbit is clearing up the snack plates.

84	RANGER RABBIT Well, what did you learn?	84
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85	ELINOR The spittle bug makes lots and lots of really tiny bubbles.	85
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86	ARI But it doesn't use a bubble wand.	86
----	--	----

87	OLIVE It blows right INTO his bubble stuff.	87
----	---	----

88	RANGER RABBIT Huh. That is really interesting.	88
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89	ELINOR Yeah. But... How are WE going to blow air into OUR bubble stuff?	89
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90	OLIVE Good question. Hmmmmmm.	90
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91	RANGER RABBIT It sounds like you're on the right track, kids. I'll be right back.	91
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Ranger Rabbit takes the plates inside.

92	ARI All this talking about bubbles has made me thirsty.	92
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Ari finishes his drink. <SFX: Sluuuuurrrrrp...> then sighs <SFX: AHHHH WALLA> which makes the water <SFX: BUBBLE> a bit. Ari notices Elinor watching.

93	ARI (CONT'D) What?	93
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Elinor smiles.

94 ELINOR 94
Ari, may I borrow your straw,
please.

Ari hands Elinor the straw. She puts it in the bubble stuff.

95 ARI 95
Wait, Elinor! Don't drink the
bubble stuff. It's SOAP! BLECH!!

Elinor takes a <SFX: BREATH> and then starts to blow air into the soapy mixture. <SFX: BLUB, BLUB, BLUB>

96 OLIVE 96

I don't think she's trying to drink the bubble stuff, Ari. She's using the straw to blow air INTO the bubble stuff, just like the spittle bug did.

ECU: A few bubbles froth up.

97 OLIVE (CONT'D) 97
It's working!

98 ARI 98
Let's help.

Ari and Olive grab straws and join Elinor taking <SFX: BREATHS> and then blowing into the frothy liquid. Bubbles <SFX: BUBBLE UP> and over the edge of the container and start gathering on the ground.

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99                                     OLIVE                                     99
    Wow! Look at those bubbles! We can
    definitely make a bubble house like
    that. Keep going!

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Finally, they make a REALLY big mountain of suds!

100	ARI	100
	Bubble-o-rama!! Now THAT's a Bubble House.	

101	OLIVE	101
	Try to get inside, Elinor.	

Elinor crawls inside the mound of bubbles and pokes her face out the front.

102 ELINOR 102
 <GASP!> We DID it!

Olive and Ari high-five <SFX: CELEBRATION WALLA>, then Elinor's Mom joins them.

103	RANGER RABBIT	103
	Wow, that's some impressive bubble building. But where's Elinor?	

Elinor calls from her bubble house!

104	ELINOR	104
	Here I am!	

105	RANGER RABBIT	105
	(laughing)	
	I didn't see you at first. How did you make such a great Bubble house?	

106	ELINOR	106
	We blew air INTO the bubble stuff, just like the spittle bug did.	

107	OLIVE	107
	And that made a whole bunch of SMALL bubbles stuck together.	

108	ARI	108
	It's like you said, Mrs. Rabbit. We looked closely to learn HOW the bug does it in Nature, and that's how we got the idea.	

109	RANGER RABBIT	109
	Well, nice work, scientists.	

110	ELINOR	110
	Thanks Mom.	
	(to Olive and Ari)	
	Who wants to come into our bubble house with me?	

111	ARI	111
	Don't mind if I do.	

112	OLIVE	112
	But... where's the door?	

113	ELINOR	113
	Oops, wait a second.	

Elinor disappears for a beat, then pokes her face out the side.

114	ELINOR (CONT'D)	114
	Ta-dah!	

115 ARI 115
 (it's obvious)
 Oh, there it is.

116 OLIVE 116
 (giggling)
 I don't know why we didn't see it
 before.

All the kids <SFX: GIGGLE> Olive and Ari climb into the
 Bubble House. A beat then, <SFX: Pop! Pop! Pop!> Three cute
 faces poke out of the bubbles.

117 ELINOR 117
 Peek-a-bubble!

118 RANGER RABBIT 118
 Awww, look. Three cute spittle
 bugs.

The three kids <SFX: LAUGH>

SEGMENT 2.

1. INT. SCHOOL -- DAY

Open on MZ. MOLE, ELINOR, OLIVE, ARI and KIDS (as necessary).
 Mz. Mole is filling little paper bags with popcorn

119 MZ. MOLE 119
 Everyone grab a little snack bag of
 popcorn for our walk.

120 ELINOR 120
 But I'm not hungry right now, Mz.
 Mole.

Mz. Mole continues to fill bags as other kids each grab one

121 MZ. MOLE 121
 Sure, but if we bring it with us
 now and then you get hungry later..

122 ARI 122
 ...we can stay outside longer!

Elinor shrugs and grabs a bag.

2. EXT. TRAIL -- DAY

Mz. Mole (now wearing a PUFFY COAT) and the kids walk/skip along a trail. After a few moments Mz. Mole stops near a few stumps/logs. The kids gather around, several start to eat some popcorn.

123	MZ. MOLE	123
	Today we are doing story time OUTSIDE.	

Mz. Mole then pulls out a book. She opens the books and we see a scene of a pond with a log

3. EXT. POND -- DAY

124	MZ. MOLE	124
	All animals living on land need air to breathe. That's true for you, me, and this beetle here.	

We see a beetle crawl out on the log and twiddle his antennae as a breeze passes over him.

125	MZ. MOLE (CONT'D)	125
	But this little beetle loves to explore underwater.	

126	ELINOR	126
	Why does the beetle go underwater, Mz. Mole?	

127	MS. MOLE	127
	That's where the beetle finds food!	

We see the beetle crawl to the underside of the log which is in the water. The underwater world opens up and we see lots of different plants (glistening). We see the beetle leap downward towards the plants.

128	ELINOR	128
	There's a lot to explore down there.	

Before reaching the plant the beetle dashes to the surface

129	OLIVE	129
	Why did he come back up?	

130	MZ. MOLE	130
	He needs to breathe air, just like we do.	

131 ELINOR 131
But how will he find his food?

132 MZ. MOLE 132
Well, some special beetles have
figured out a way to bring air down
with them. They make a bubble!

Just below the surface the beetle flutters his Elytra (hard wing covering) which break the surface (tension) of the water. A glistening bubble of air is caught in between the elytra and the body. The beetle moves a bit and then dives back under the water with the bubble stuck to him <SFX: KIDS WHOA> <https://www.pbs.org/video/deep-look-beetle-divers/>

133 ARI 133
Can he breathe the air in the
bubble?

134 MZ. MOLE 134
Why yes he can!

135 ELINOR 135
That's so interesting! Now he can
stay underwater longer and find
food.

136 MZ. MOLE 136
Yes! These beetles can stay
underwater a very long time,
exploring for food and having fun.

The beetle cruises around underwater, zipping among the plants, even doing flips in the water as he speeds between them.

Kids laugh as more beetles zip about in the pond. <SFX: CRUNCH, CRUNCH>

3. EXT. TRAIL -- DAY

Mz. Mole closes the book. We see Elinor with popcorn in her mouth looking a bit guilty <SFX: kids chuckling>

137 MZ. MOLE 137
It's a pretty smart trick to take
what you need with you. The beetle
took its air bubble and we took a
snack!

138 ELINOR 138
Mz. Mole, don't you want some
popcorn?

We pan out to see Mz. Mole in her very puffy coat. Mz. Mole has a wry smile.

139 MZ. MOLE 139
Well...

Mz Mole unzips her coat a bit. It opens and a mountain of popcorn comes pouring out.

140 MZ. MOLE (CONT'D) 140
I DID BRING some!

The kids erupt in laughter.

THE END.