



## **Eco-Schools Leadership Initiative (ESLI)**

*With just a little bit of knowledge, we can ESLI make a change*

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### ***Background***

Environmental education throughout the country is highly sparse, especially with the numerous changes and budget cuts within the education sector. Due to this, many, if not most, students are unaware of the critical state that the environment is currently in. The term “climate change” is thrown around but in reality most of the people using it, do not have a clear idea of what it really means. Therefore Virginia Commonwealth University student Mashaba Rashid started a program to help bridge this gap of knowledge. Eco-Schools Leadership Initiative (ESLI) is a program where college and high school students educate elementary school students about different environmental topics. ESLI uses interactive and engaging techniques to get young students passionate and interested in combating environmental problems. ESLI has two main goals —empower youth leaders, and educate elementary-aged students so they too can become leaders. With twelve ESLI chapters, there are an estimated 60 college and high school age youth who have developed public speaking and leadership skills as ESLI educators and over 250 elementary-aged students who have been taught.

The kids who are educated by the ESLI program are not your typical already-green crew. Instead, these are students who stay for their elementary school’s aftercare program because their parents cannot pick them up until a couple of hours after the school day is over. **Therefore, ESLI volunteers teach kids from a diverse background, many of which would not otherwise be exposed to topics relating to the environment.**

ESLI is engaging others in addressing environmental challenges by setting up a platform for discussion in which youth of all ages are front and center stage in all aspects of environmental education from gaining experience writing curriculum, to teaching it, to problem-solving with students of all ages.

Mashaba’s passion for environmental science began in the 3rd grade when she did a science fair project on Climate change and became very interested in the topic, especially because it had a huge impact in her home country, Bangladesh. During 7th grade her science teacher announced to the class that he will not be teaching the Climate Change unit because he believed that it was all a hoax. This was the first time that Mashaba had been exposed to the controversial aspect of the topic and it made her angry! She realized that she had to do her part to make a change and educate people on this critical topic which essentially affects everyone on this planet. Sophomore year of High School she finally decided to launch this project through a program she was apart of called LearnServe International. That is when she met Talia Schmitt who was as equally passionate about educating the youth about environmental issues and together they created Eco-Schools Leadership Initiative.

ESLI originally started in 2015 where Mashaba would lead monthly sessions created by the two founders at a local elementary school known as Fairhill. The feedback was positive and she

could tell the students were understanding the material that she was teaching. She continued these sessions all the way until the end of her Senior year of high school, while Talia helped refine the lesson plans with environmental education knowledge that she was learning during her Gap Year. One thing that they struggled with was getting ESLI into other high schools so during the summer of 2015, Talia and Mashaba decided to hold a conference open to all high school and college students to spread the word about ESLI and to recruit interested people who could start their own branches. The National Wildlife Federation in Reston, VA was kind enough to host their event and ESLI recruited a number of people to hold workshops showcasing the different lesson plans that they had created. They had a great turn out and by the end of the 2015-2016 school year ESLI had 6 new branches in 4 high schools and two colleges. Along the way, ESLI has won a couple of Youth Service America awards and has had an article published about the organization! They just held their fourth conference in late June, with the highest turn out of students yet and are currently working with those students to create more chapters in the DMV area.

### **Curriculum**

The curriculum encompasses the National Wildlife Federation's Eco-Schools 10 pathways including Biodiversity, Sustainable Food, Climate Change, Consumption and Waste, Energy, Global Dimensions, Healthy Living, Healthy Schools, Transportation and Water. The lessons are a combination of curriculum donated by established environmental education centers like NatureBridge and Hemlock Overlook, and ones that students have created and adapted in the field.

The goal of the ESLI curriculum is for students to get a basic understanding of their role in the natural world through exploring the ten different pathways. They will learn about the topics and problems, but always be offered a solution for each problem.

All of the ESLI lessons have an engaging introduction where educators introduce a subject through questions and connections to the students. This is followed by an exploratory activity where students have a hands-on experience. Lastly, there is always a meaningful discussion where students and educators reflect on the lessons learned and possible solutions. An example is our "Grow it Anywhere/ Tracking Food lesson." This lesson starts with students divided among educators, and each group has a map to explore the different places that their food has traveled from. Using knowledge of climates, students match up 3 different produce options: banana, corn and apple with three different locations: Costa Rica, Iowa, and Washington state, on the maps. We discuss the pros and cons of buying locally, and then we have a hands-on activity where students plant vegetable seeds in soil in repurposed milk gallon and berry containers. They decorate and take home their local food option. Afterwards, the ESLI chapter reflects on various local food options in the area, etc.

Every month focuses on a different environmental topic, but we all end with our last month talking about Climate Change and tying all the subjects and solutions together. Figure 1 is one of the lesson plans that is currently being used by ESLI leaders. All curriculum is open and free to the public and can be found on our website:

<http://www.eslileaders.org/curriculum.html>.

## Figure 1: Sample Lesson

### The Water Treatment Process

#### Eco-Schools Topic:

Water

#### Grade Level:

Grades K-8

#### Standards:

n/a

#### Guiding Question:

How is water treated and why is it important?

#### Key Questions, Attitudes and Behaviors to Teach:

- We live in the \_\_\_\_\_ Bay Watershed. (K)
- The health of the Chesapeake Bay is important to me. (A)
- I turn off the sink when I brush my teeth. (B)

#### Lesson Objectives:

- Students will understand the water treatment process
- Students will understand the scarcity of water
- Students will be able to give examples of ways to conserve water

#### Materials:

- [\*The Magic School Bus At the Waterworks\*](#) book (preferably multiple copies)
- Water Treatment Process cards at bottom of lesson plan
- Whiteboard
- Whiteboard markers

#### Prep:

- Buy or borrow a copy of *The Magic School Bus* book
- Print and cut out the Water Treatment Process cards

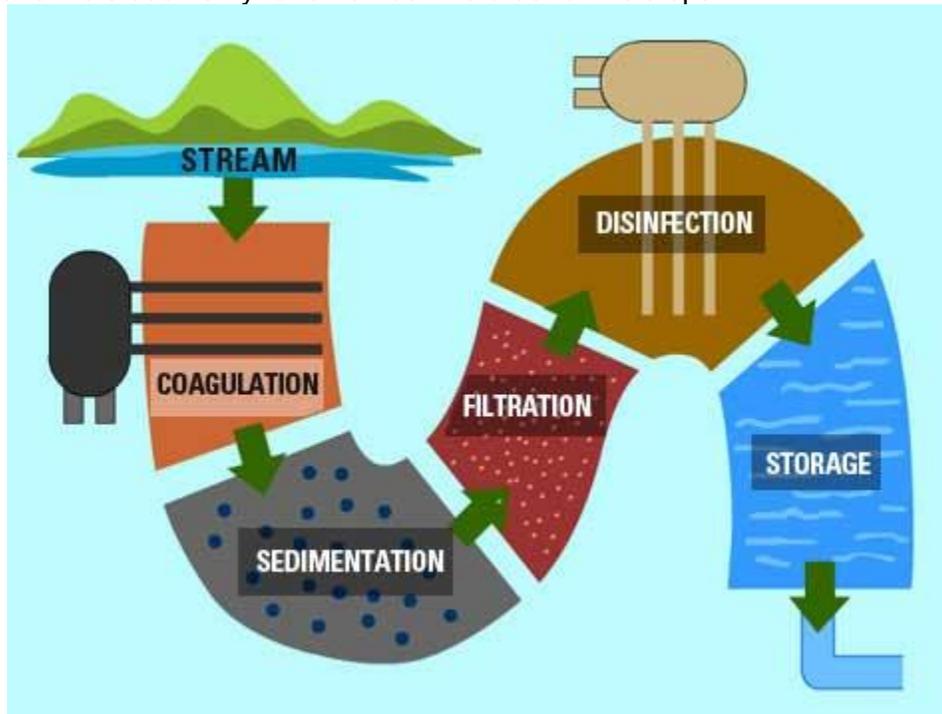
#### Engaging Intro

- Begin by discussing with students how they use water in their daily lives.
  - Have them list the things that they use water for and write them on the whiteboard as they are mentioned
    - Ex: wash hands, brush teeth, water the plants, take a shower, do the dishes, drink water, flush toilet, do laundry, fill fish tank, water lawn, cook, clean, etc.
- Ask students to name other places besides their home where water is used. Have them think about how they are connected to those places
  - The farmers who you get your food from water crops and animals
  - Coal plants that make your energy use water
  - Sanitation plants that make your clean tap water use it in that process
  - Factories that make goods you use use water in manufacturing and cooling.
- The students might know how water is used, but ask them: have they ever thought about where their water comes from?
  - Water doesn't just appear in the faucet when you need it; there is a complex process of water treatment that gets water to your sink, ready to use!

- To teach the kids about this process, you can read the Magic School Bus book to them
  - This is best to do in small groups if you have enough copies of the book

### Exploratory Activity

- Now that the students have a basic understanding of water treatment from the book, we are going to play charades to act out the process ourselves!
- First, have the students try to remember the order of the steps



- STEPS OF THE PROCESS IN ORDER:
  - Stream: Fresh water is taken from a spring, stream, or other water source
  - Coagulation: Chemicals are added to the water and get stuck to particles in the water
  - Sedimentation: Heavy particles sink to the bottom of the chamber
  - Filtration: Heavy particles are filtered out as cleaner water passes through the filters
  - Disinfection: Methods are applied to kill harmful bacteria in the water
  - Storage: The clean water sits in storage tanks
  - Pipes: Water is pumped through pipes to homes and workplaces
- Split the kids until small groups and give each group a copy of the cards with the steps
- Tell them that they need to put the cards in the correct order!
  - Have volunteers walk around to help the kids if they get stuck
  - Check each group once they think they have it in the correct order.
- Next, call on students to act out a step of the process
  - First, have one student/step perform at a time. Have the other kids shout out the name of the step being demonstrated to show their understanding. Ask them: what about the charade made it resemble that step?

- Ex: It represented sedimentation because the student was standing and then sat on the ground, like how heavy particles sink to the bottom of the water during this step
- After the kid acting as a stream goes, ask the kids if they know what the “stream” or source of our water is.
  - Answer: The Fairfax area gets its water from the Occoquan Reservoir and the Potomac River Basin
- Then, have all the steps go one after the other to show how all the steps are part of one fluid, complex process that makes our water clean

### Meaningful Discussion

- Review the water treatment process steps with the students once more
  - Ask them: is this process simple with a few steps or complex with lots of different steps?
    - Complex!
- Discuss with the kids: now that they know how complex the water treatment process is, how does it change how they feel about their water usage?
  - Ex: It makes them realize how precious water is and that they really need to save it
- Have a discussion with students about what they can do to conserve water. Write down their ideas in a list on your whiteboard.
  - Ex: turn off the faucet while brushing teeth, take shorter showers, build a rain barrel
  - Emphasize that there is a wide variety of things they can do to conserve, not just the ones they came up with!
- Encourage the students to go home and do something that night to use less water. Also, suggest that they share their newfound knowledge with their family and friends!

### Links and Resources

- 100+ Ways to Conserve Water:
- <https://wateruseitwisely.com/100-ways-to-conserve/>
- The Water Treatment Process: <http://www.eschooltoday.com/global-water-scarcity/how-water-is-treated-for-drinking.html>
- Fairfax Water:
  - Conservation Tips: <https://www.fairfaxwater.org/conservation>

Educational Resources:

<https://www.fairfaxwater.org/educational-resources>

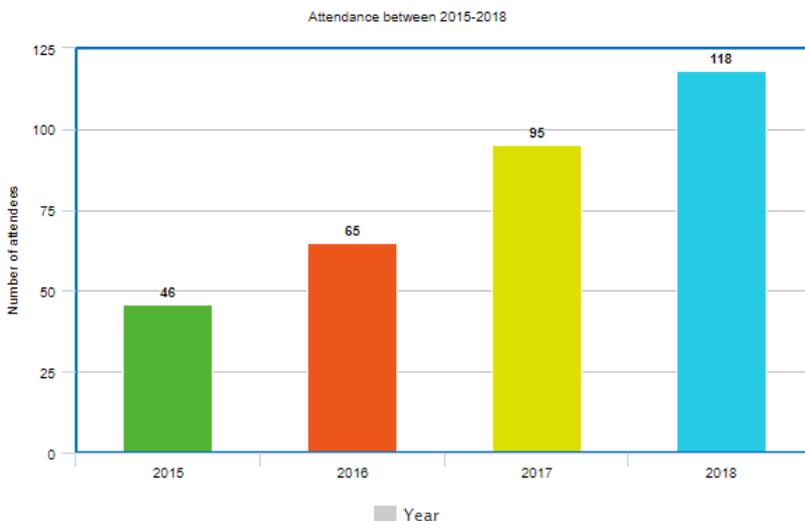
### Conference

As mentioned earlier, ESLI holds an annual environmental education conference at the NWF headquarters in Reston, Virginia. The conference is used as a tool to introduce ESLI to students and get them interested in starting a chapter at their own school, or to join if one already exists. The conference is mainly geared towards high school and college students, but is essentially open to everyone and in the past students from as early as age six has participated. Figure 2 gives a breakdown of what events take place at the conference. Generally, different environmental educators are invited to hold different lesson plans that ESLI leaders normally lead throughout the year so that the attendees get a preview of what it is like to

lead an ESLI session. The attendees also get a chance to collaborate with students from their school to create their own lessons. From their own experiences, Talia and Mashaba found that finding other students passionate about ESLI at your own school can be quite difficult, and the conference helps somewhat resolve that obstacle. By meeting and interacting with the other students from their school, the attendees create a group to potentially start a chapter with. Figure 3 shows the student outcome for the conference from start to current.

**Figure 2: 2018 Conference Agenda**

Conference Agenda		
Time	Event	Presenter
09:00-09:20	Check In	Mashaba Rashid, ESLI Co-founder
09:30-09:55	Conference Introduction, Video Intro to ESLI	Talia Schmitt, ESLI Co-founder Serena Xia, Conference Co-Chair Kathleen Race and Kim Martinez, NWF
09:55-10:00	Speed Dating Introduction Game	Serena Xia and Jaden Ko, Conference Co-Chairs
10:00-10:45	Workshop 1	<b>Workshop Options:</b> 1. Ecology 2. Climate Change 3. Consumption and Waste 4. Energy 5. Sustainable Food
10:50-11:35	Workshop 2	
11:40-11:50	Meet and Share	
11:50-12:00	Introduction to Get2Green & Eco-Schools	Ali Culhane, FCPS Get2Green
12:00-12:40	<b>Lunch &amp; Presentation Fair</b>	
12:40- 12:45	Hamza Muhammad Memorial Award Presentation	Mashaba Rashid, ESLI Co-founder
12:45- 1:00	ESLI Alumni Panel	ESLI Alumnus
1:00- 1:30	Create Your Own ESLI Activity (inspiration station)	Celeste Phillips, Curriculum Coordinator
1:30- 2:10	Each One, Teach One	
2:10- 2:30	What's Next: Guide to continue ESLI at your school	Jaden Ko, Conference Co-Chair
2:30- 2:40	Naturebridge Introduction	Jim Serfass, NatureBridge
2:45- 3:00	Closing Game: Where the Wind Blows	Sophia Applegate, ESLI Volunteer



**Figure 3: Attendance for environmental conference between 2015-2018**



**Figure 4: Group picture from 2018 conference**

### ***Field Mentor Program***

Besides the conference and the lessons, ESLI has another component as well, the field mentors program. This part of the program connects ESLI leaders to local environmental educators in their community. Once a month, the ESLI leaders all meet together with one of the educators, in the past it has been members of Arcadia Farm, the supervisor of a recycling plant, workers at a farmers market, etc. The field mentor for each month is somehow related to that month's lesson. For example, if the month's lesson plan is on recycling, the field mentor meeting will be at the recycling plant. This is so that the ESLI Leaders have a better understanding on the topic they will be teaching later in the month. During these meetings, the mentor talks about their job, the environment they work in and how it relates to the lesson of the month. Afterwards, the students volunteer at the location and share their plans for the month regarding their ESLI lessons. This is a new part of ESLI, it has only been running for a year. However, there has been positive responses from both the ESLI leaders and the mentors so it will be seeing a second year.

**Figure 5: Picture from May's Field Mentor Trip- the month's theme was climate change!**



**Figure 6: Picture from April's Field Mentor Session at EC Lawrence Park with Dan Schwartz from NoVA Soil and Water Conservation District**

### ***The Impact***

ESLI has twelve chapters at different high schools and colleges across Virginia. There has been a **breadth of impact** because every ESLI lesson provides a chance for both the children and everyone in their social circles to learn about the environment. As shown through the ESLI program, students' mentalities change once they are educated at a young age. Then, they have the power to influence parents and friends to make environmentally conscious decisions as well. Figure 7 shows how much ESLI has grown and how many students it has impacted since 2015.

High school and college students have gained leadership skills. At William & Mary, there are twelve college students who are consistent ESLI volunteers. Throughout Virginia, about fifty high students have gained experience teaching groups about the environment. All college members have had the opportunity to develop and teach environmental lessons. After their last meeting, ESLI college volunteers agreed that they would miss ESLI “so much” over the summer. Numerous volunteers have gotten comfortable teaching kids about the environment through ESLI volunteering and then gone on to teach environmental education during the summer.

Elementary school students benefited from consistent interactive environmental lessons. Approximately 250 elementary school students have been educated about the environment. Every month, students learned about a different environmental subject so students learned about a range of different topics including upcycling, biodiversity, food, water, renewable energy, recycling and climate change. Students have shown us that they are changing bad habits to consume less and reuse more due to our lessons. For waste reduction month, the kids collected their garbage for 24 hours. The next time I came to the school, one of the children noted that he hadn’t used plastic bags since we had talked about plastic’s impact on the environment. One student said he now goes on litter pick-up walks; another reused an old box to make a “chill-out” zone in his room. In addition, the younger students gained older role models to demonstrate that protecting the environment is cool, and that they can follow their environmental passions to pursue a green degree or green job.

ESLI impacts extend outside the student and youth educator. Parents, teachers, and school board members have all thanked us for our help. Parents told us that their children were teaching them how to recycle. Teachers mentioned that their students who participated in the ESLI program knew more than they did about pollution, and they thanked us for educating areas that matched the educational standards they needed to meet. School board members have praised us for creating a more interconnected community between students of various ages.

**Figure 7: General ESLI Statistics**

**7.1: 2017-2018 School Year Stats**

Total High Schools & Colleges	12 (Chantilly, JEB Stuart, Langley, Loudoun Valley HS, Broad Run HS, Stone Bridge HS, and Potomac Falls, Madison, Oakton, South County, TJ, The College of William & Mary)
Total ES	10 (Oakton visited 2)
Total Volunteer Hours (1.5h/ session)	480
Total Number of ESLI Volunteers	108
Total Number of Sessions	60
Total Number of ES Students Impacted	250 ES students

**7.2: 2016-2017 School Year Stats**

Total High Schools & Colleges	7 (Chantilly, South County, Madison, Oakton, Marshall, W&M, Langley)
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Total ES	7
Total Volunteer Hours (1.5h/session)	354
Total Number of ESLI Volunteers	60
Total Number of Sessions	47
Total Number of ES Students Impacted	175 ES students

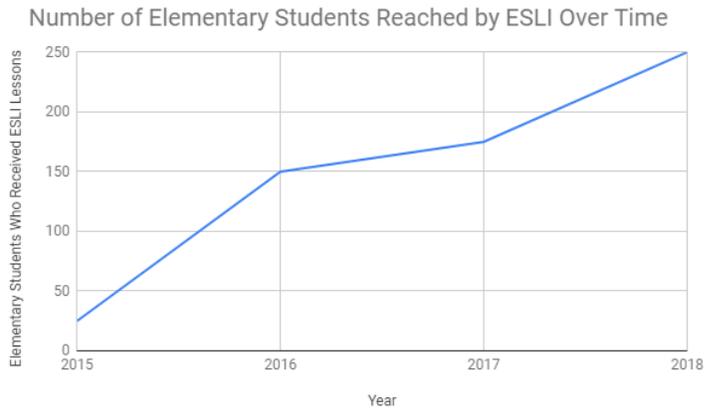
**7.3:2015-2016 School Year Stats**

Total High Schools & Colleges	6 (Chantilly, South Lakes, Herndon, Mary Washington, W&M, Langley)
Total ES	6
Total Volunteer Hours	n/a
Total Number of ESLI Volunteers	9 recorded
Total Number of Sessions	n/a
Total Number of ES Students Impacted	150 ES students

**7.4: 2014-2015 School Year Stats**

Total High Schools & Colleges	1 (Woodson)
Total ES	1
Total Volunteer Hours	n/a
Total Number of ESLI Volunteers	n/a
Total Number of Sessions	n/a
Total Number of ES Students Impacted	25 ES students

**Figure 8: Graph of the Number of Elementary Schools Reached by ESLI Over Time**



**Figure 9: Number of ESLI Chapters Per Year**

