Integrating *Drawdown*'s solutions into your high school science classroom

Sarah Duffer
Asheville High School
August 21st, 2018
Overview

- What is Drawdown?
- Who is Sarah Duffer and what does she teach?
- Integration into high school science classes
- What is the Drawdown EcoChallenge and how did Asheville High win first place?
- What’s next?
Getting to know Drawdown

1. What is it?
2. Who is the Drawdown team?
3. How did they identify the solutions?
4. Their paradigm
Introduction to Teacher and School

- Sarah Duffer, 15 year Earth & Environmental Science teacher at Asheville High School, Asheville North Carolina
- Courses:
  - 9th grade Earth/Environmental Science
    - Standard
    - Honors
  - Advanced Placement Environmental Science
How has Duff implemented the book in the classroom?

9th grade Earth & Environmental Science Standard and Honors

<table>
<thead>
<tr>
<th>Criteria (point value)</th>
<th>Your Response:</th>
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</thead>
<tbody>
<tr>
<td>Title and rank # of the Solution I read (1):</td>
<td></td>
</tr>
<tr>
<td>List of words I didn’t know or are very unfamiliar with (5):</td>
<td>None is not an acceptable answer.</td>
</tr>
<tr>
<td>List of concepts I didn’t know or are very unfamiliar with (5):</td>
<td>None is not an acceptable answer.</td>
</tr>
<tr>
<td>Solution thesis (5):</td>
<td></td>
</tr>
<tr>
<td>How will the Solution reduce greenhouse gas (GHG) emissions? (5)</td>
<td></td>
</tr>
<tr>
<td>Please Summarize the Solution here: (16)</td>
<td></td>
</tr>
<tr>
<td>Questions I have (3):</td>
<td>None is not an acceptable answer.</td>
</tr>
<tr>
<td>Reflection (7):</td>
<td></td>
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</tbody>
</table>

Click here for document link.
How has Duff implemented the book in the classroom?

→ AP Environmental Science Puerto Rico Resiliency Lesson

Increasing Puerto Rico's resilience amidst a changing climate

"Project Drawdown] see[s] global warming not on as inevitability but as an invitation to build, innovate, and effect change, a pathway that awakens creativity, compassion, and genius."

-Paul Hawken

Drawdown [vi]

September 2017 was a devastating month for Puerto Rico.

On Wednesday, September 6th, Irma a Category 5 hurricane battered the Caribbean island. Fourteen days later the island was slammed again by Hurricane Maria which was one of the strongest hurricanes ever recorded in the Atlantic Ocean.

Today in class you will be working in small groups, using news articles, to identify and describe the energy crisis in Puerto Rico and then use the book Drawdown to identify solutions to Puerto Rico’s humanitarian and energy crises.

1. Your Team Members are:

2. Refer to the news articles that are provided to you.
   a. Choose one energy or electrical grid related issue that Puerto Rico needs to address.

Click here for general lesson, and here for electrical-grid specific lesson.
Rebuilding a more resilient Puerto Rico

What do we lose when we lose power?

- Mental health
- Light
- Temperature control
- Clean water
- Sewage disposal
- Food storage
- Medication storage
- Life support devices + medical technologies
- Safety mechanisms
- Transport
- Communication
- Air quality
How has Duff implemented the book in the classroom?

➔ Drawdown Ecochallenge Assignments
What is the Drawdown EcoChallenge?

- Northwest Earth Institute
- 21 day engagement competition in April
- Focused on carbon reduction
- Rooted in the Drawdown Solutions across 7 sectors
- Over 80 EcoChallenges are either one time or daily challenges
- How are points earned?
Drawdown EcoChallenge: Our Goal

APRIL 4 - APRIL 25, 2018

ASHEVILLE HIGH SCHOOL!

To have every Environmental Science student on campus identify, communicate, and practice concrete actions that reverse climate change.
Drawdown EcoChallenge: Our Team

- 512 participants
  - All Environmental Science Spring 2018 students
  - Other students including environmental groups
  - Teachers
  - Community members
Drawdown EcoChallenge: Lessons

[Google site](#) with supporting resources

10 lessons:

<table>
<thead>
<tr>
<th>Energy</th>
<th>Food</th>
<th>Land Use</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass</td>
<td>Food Waste</td>
<td>Forest Restoration</td>
<td>Bioplastics</td>
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<tr>
<td><strong>Wind Turbines</strong></td>
<td><strong>Forest-friendly foods</strong></td>
<td><strong>Silvopasture</strong></td>
<td><strong>HCFCs</strong></td>
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<tr>
<td>and Wind Energy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geothermal</td>
<td></td>
<td>Temperate Forests</td>
<td></td>
</tr>
</tbody>
</table>
Drawdown EcoChallenge: Use of Social Media

- **Instagram**
  - Stories
  - Posts
- **Twitter**
- **Emails in the final days**
Teenagers are Change Makers...

Student-organized walk-out to protest gun violence in schools.
March 2018
... despite enormous loss
## Drawdown EcoChallenge Successes

<table>
<thead>
<tr>
<th>Success</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miles travelled by carpool</td>
<td>2,068</td>
</tr>
<tr>
<td>Locally sourced meals consumed</td>
<td>335</td>
</tr>
<tr>
<td>Donations made</td>
<td>63</td>
</tr>
<tr>
<td>Conversations with people</td>
<td>406</td>
</tr>
<tr>
<td>People helped</td>
<td>43</td>
</tr>
<tr>
<td>Documentaries watched</td>
<td>86</td>
</tr>
<tr>
<td>Lightbulbs replaced</td>
<td>475</td>
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<tr>
<td>Hours volunteered</td>
<td>39</td>
</tr>
<tr>
<td>Public officials or leaders volunteered</td>
<td>782</td>
</tr>
<tr>
<td>Pounds of CO₂ have been saved</td>
<td>7,120</td>
</tr>
<tr>
<td>Miles travelled by bike</td>
<td>218</td>
</tr>
<tr>
<td>Gallons of water have been saved</td>
<td>1,589</td>
</tr>
<tr>
<td>Minutes spent learning</td>
<td>34,132</td>
</tr>
<tr>
<td>Meatless or vegan meals consumed</td>
<td>1,568</td>
</tr>
<tr>
<td>Zero-waste meals consumed</td>
<td>379</td>
</tr>
<tr>
<td>Miles travelled by bus</td>
<td>606</td>
</tr>
</tbody>
</table>
Drawdown EcoChallenge Successes

- Our Grand Prize: A one hour web call with Drawdown editor Paul Hawken
Drawdown EcoChallenge in the Future

- JOIN US in April 2019!
- Collaborate with us!
Let’s connect!

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AND

@AHSsolarCougars