



Dear educators,

Thank you for taking the time to review these materials! They are intended to prepare you and your students to launch investigations and action plans related to local environmental issues. While some pre-packaged curriculum aims to teach students facts they may or may not retain and utilize, this curriculum is designed to provide students the opportunity to learn skills and content according to their own curiosities.

The Unstoppable Schools Project develops leadership skills in students so they can become agents for positive change in their own communities. These lifelong lessons will follow kids into the real world. The project focuses on developing research, collaboration, artistic expression and communication skills, both written and verbal. We hope students will incorporate their strengths (Videography? Song? Scientific Experimentation?) to make their work as impactful as it can be. We also aim to encourage good habits of learning, offering challenges that will increase students' awareness, autonomy, and capacity for complexity.

This project is designed to be completed in small groups over the course of a semester, but some teachers choose to do the project as a 2-4 week intensive unit, and some students have succeeded in embarking on the project solo. However you proceed, students will start by picking a topic they're curious about (Lesson Plan 1). They will then craft an environmentally-centered research question inspired by their chosen topic (Lesson Plan 2). Then, they'll consider their own personal relationship to consumption and sustainability (Lesson Plan 3) as they complete the three project phases outlined in the overview: Research, Action and Exhibition.

Get started with the table of contents below!

All the best,

Vickie Curtis

Writer, Chasing Coral

Education Coordinator, Exposure Labs

INTRODUCTION

Making a documentary takes input and hard work from dozens – and often hundreds – of people with a huge variety of skill sets. It's always hard work, and the film team and subjects encounter many obstacles in the process, but they persevere. It takes an **unstoppable** team to succeed. Students will emulate the work of the documentary team, collaborating and relying on each others' strengths to make change.

This project provides students around the world with a chance to explore Earth's changing ecosystems. Our relationship with the planet's natural resources is always evolving as we discover and recover better ways to live on Earth. These improvements often start with small, bold, local action.

THE UNSTOPPABLE SCHOOLS PROJECT UNFOLDS IN THREE STAGES:

RESEARCH

Students work in teams to develop a research question and investigate a local environmental issue. The "local environment" can be anything from a farm, to a river, to your own school.

ACTION

Students develop a plan to spread awareness or improve humanenvironment relationships. The action plan will be guided by which "Challenge" they choose.

EXHIBITION

As a class, students share their work with the community through a presentation or performance that can take place during lunchtime, after school, or in conjunction with a local public event.

Teachers, please share student work with the Unstoppable Schools network by messaging education@exposurelabs.com. Your students' work could be featured at: www.weareunstoppable.com

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assessment

SCREENING NUTS & BOLTS

Technical tips to review before sharing the film in the classroom

ACCESSING THE FILM

Option 1 (recommended): Full-length film via Netflix (90 mins)

Screening directly from Netflix. The full-length film is only available on Netflix.

- If you're using an in-home streaming media player, navigate to Netflix, locate Chasing Coral and click play!
- If you're using your laptop, be sure to access the film using the latest version of Google Chrome, Mozilla Firefox, or Opera.
- If you encounter any issues utilizing Netflix, visit the Netflix Help Center.

No access to Netflix? Sign up for a free 30-day trial here.

Firewall restrictions or unreliable internet? If your venue blocks Netflix, you can download the film to an iPad off-site, and then play it at a later time without web access.

- From your Netflix iPad app, select App Settings from the left-hand dropdown menu. Here you can choose the highest quality for the best projection results.
- Use the search feature or select the Available for Download category to locate <u>Chasing Coral</u>. Be sure you have enough space on your iPad available. Next, simply tap on the download icon and the download will start immediately.

Option 2: Shortened clips of the film via DocAcademy (5 mins or less)

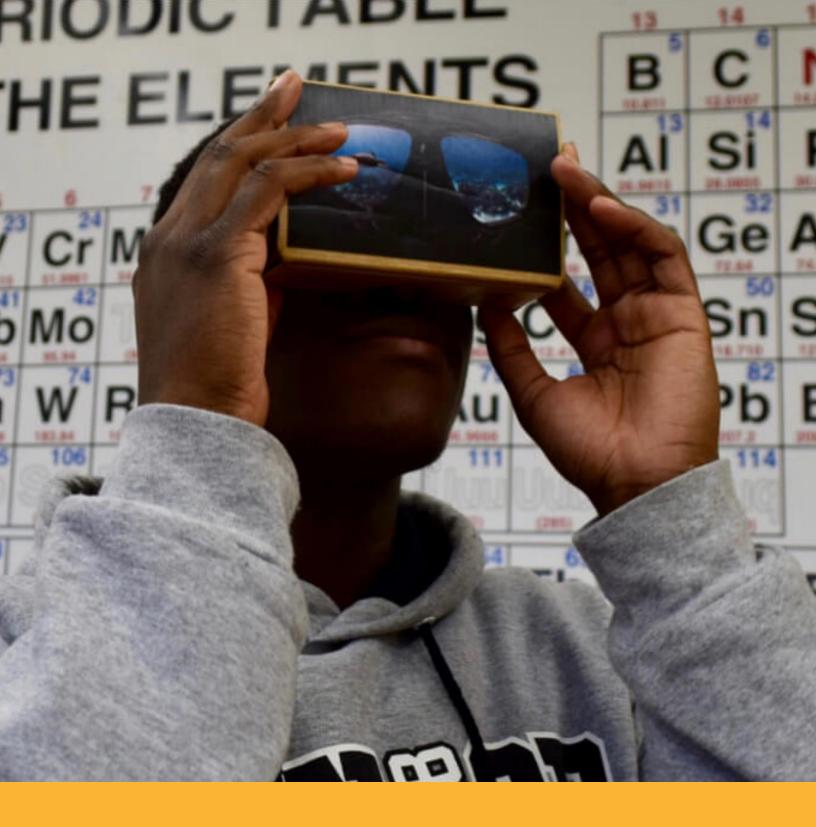
Sign up here for a free account to access 5 select clips of the film from DocAcademy.

PLAYBACK TIPS

- Laptop and iPad playback. To project the film from your laptop or ipad, you will need an HDMI cable that supports HDCP
- **Projector connection.** For Windows systems, we recommend connecting your projector before starting Netflix or your DocAcademy.
- Testing, testing, 1-2-3. Allow 48-hours to get familiar with Netflix or DocAcademy, and conduct a test of your screening capabilities prior to your event.

INTEGRATING VR

Virtual Reality below the waves. We also have a special VR film that can be shown with the film to immerse your students in the story of our ocean. If you have the equipment necessary to view virtual reality content, request a link to our VR film here.





LESSON 1

Debrief the film and launch student-led explorations into local climate issues.

LESSON PLAN 1:

A CLIMATE OF CURIOSITY

DISCUSS THE FILM & INTRODUCE THE PROJECT

(45-60 minutes **Intended for after film screening)

Essential understanding for this lesson:

Students will reflect on the collaborative efforts, failures and achievements of the *Chasing Coral* team. In addition, students will start to get curious about local environmental issues to investigate.

DEBRIEF DISCUSSION (15 min.)

After the movie, launch a debrief discussion with the following questions:

What was the team trying to accomplish? Did they?

What different skill sets were employed?

How did the scientists benefit the photographers and vice versa?

What could they have done differently?

Do any of the characters inspire you? How so?

What now?

How do the characters teach us to "fail, try again, fail better?"

A FUN FACT TO SHARE: The making of Chasing Coral (5 min.)

The *Chasing Coral* team was made up of divers, filmmakers, photographers, scientists, engineers who built the camera systems, writers, boat captains, and even an accountant.

In order to find out what was happening to corals and to make the film, they did boatloads of scientific research, interpreted data, and asked important questions. They interviewed experts, learned to use new equipment, wrote grants, made pitches, traveled to faraway seas, made connections with people living on the other side of the world, and completed hundreds of hours of SCUBA diving missions to visit corals around the world. When at first they failed, they tried again. This five-year project relied on the curiosity of diver-photographer Richard Vevers, the dedication of "coral nerd" Zack Rago, and the perseverance of filmmakers Larissa Rhodes, Jeff Orlowski and the rest of their team. If you could learn more about something, anything, what would it be?

GETTING CURIOUS – Students consider topics they are curious about (10 min.)

Wondering how your favorite jeans were made, questioning why a nearby river smells so foul, or a curiosity about sharks could each be a starting point for this project. Help students make connections between their interests and the human/environment relationship.

Keep In Mind: Chasing Coral started as an interest in SCUBA diving. It became an investigation of ocean change, and it narrowed to become a passionate quest to reveal the plight of coral. While students need a clear starting point, flexibility to let a project morph, become more specific, and intensify is paramount to their project's success.

WHY YOU? – Students reflect on their personal skills and strengths (10 min.)

This can take the form of a personal, written reflection, or a one-on-one conversation with a partner.

Reiterate: It takes all different kinds of people with different specialties to make positive change. Together, they must **organize** the steps of the project, **delegate** work, **make connections** with community members from different fields, **research**, **write**, and potentially present or **perform** material they've created.

→ INTRODUCE THE PROJECT (20 min.)

As a class, review Student Handouts A, B, and C to introduce the project students will embark on after they watch the film:

Handout A: Project Overview
Handout B: Example Projects
Handout C: Assessment Rubric

Let them ask questions as you go.

PROJECT OVERVIEW

INTRODUCTION

The Unstoppable Schools Project is inspired by the work of the team in *Chasing Coral*. They came together to **RESEARCH** the warming oceans, take **ACTION**, and **EXHIBIT** their work

Over the course of this project, you will:

RESEARCH an aspect of your local environment, take ACTION to improve the human-environment relationship, and EXHIBIT your work so others can learn and benefit.

This project is also an opportunity to use your unique skills – whether they're artistic, musical, analytical, or otherwise. You will apply these skills to:

- Spread awareness about changes to local ecosystems.
- Create innovative solutions in your own community.

PROJECT COMPONENT BREAKDOWN:

RESEARCH

- 1. Select a project challenge, outlined in the next handout, to shape your research.
- 2. Develop a research question that is narrow, specific, and clear.
- 3. Write a literature review: 1-2 page written summary of the relevant science and/or history you discovered through your research. Include a bibliography citing the sources you used.
- 4. **Conduct a community interview** with someone who can act as a mentor for your team someone with expertise or the power to make decisions related to your research question.

ACTION

- 1. Write an Action Plan outlining how you will make an impact, answering the following:
 - What problem are you addressing?
 - What steps will you take to raise awareness or make change?
 - What resources will you need, and how do you plan to access them?
 - Who will be your out-of-class mentor, and how do you plan to work with them?
 - Who from your group will spearhead each task?
- 2. Seek the support you need, and take action!
- 3. Write a 1-page Reflection Paper, sharing how your 'work in the wild' unfolded. Detail any steps you plan to take to keep your local initiatives going.

EXHIBITION

- 1. Plan an exhibition event with your whole class. How will an audience experience each of your projects? How long will each element of the event take? How will you promote the event?
- 2. **Delegate roles.** Divvy up the responsibilities so the exhibition goes smoothly. Remember to use your strengths, and take an active role in the exhibit's success. Set up the space, be the emcee, provide technical support the list is endless!
- 3. **Debrief.** Have a class discussion about how it all went! What were the highlights? The obstacles? What will you do differently the next time you take action?

Take time to celebrate what you've accomplished!

STUDENT HANDOUT (B)

CHOOSE YOUR CHALLENGE

Before you dive into research, choose your challenge!

Split into teams of 2-4 students. Become Unstoppable by completing ONE of these challenges. Choosing a challenge will help shape your research and your action plan. (We recommend different teams tackle different challenges.)



SUSTAINABLE SCHOOLS CHALLENGE

How much energy does your school use every year? How much waste does it produce? Take action to change or propose a change to these practices. Work with school administrators to improve your school's footprint.

EXAMPLE

RESEARCH

How can we reduce our school's carbon footprint by reducing our electricity usage?

ACTION

Use Energy Star's Portfolio Manager or a similar tool to calculate your school's energy use and propose a 10-step consumption reduction action plan.

EXHIBITION

Set up a booth where students and teachers can estimate the school's carbon footprint. Share the real numbers. Ask them to support your action plan.



ADVANCE THE COMMUNITY CHALLENGE

Seek information on a local establishment's effect on the environment. Propose a change that could benefit the environment and the establishment. Any effort to propose or change governmental policy would qualify.

EXAMPLE

RESEARCH

How does single-use plastic affect the environment, and how can X company or organization reduce its use?

ACTION

Work with a local pizzeria to eliminate their plastic straw use. Film the process!

EXHIBITION

Show your short film about eliminating straws and the costs of singleuse plastic to another science class.

P

ART AS ACTION CHALLENGE

Artistic expression is the act of bringing beauty and entertainment to an otherwise ordinary subject matter. Hone in on one environmental issue and translate your scientific research into art that informs and entertains.

EXAMPLE

RESEARCH What/who is polluting my city?

Research common pollutants in your local bioregion and use them to build a visual depiction of the local ecosystem.

ACTION

EXHIBITION

Display your artwork in a local park. Talk to passersby about curbing pollution.



HERITAGE CHALLENGE

Through town archives, a city newspaper, or a local elder, locate images of your town from decades ago. Document how these places look today, and research the impact the development has had on the environment.

EXAMPLE

RESEARCH

How have our local marshlands changed over the last 40 years, and how do they prevent flooding?

ACTION

Interview a local developer about a marshland that's been replaced by condos, or a mall.

EXHIBITION

Create a 'before & after' display that reveals the value of marshland in flood mitigation and loss of the ecosystem over time.



CONNECT THE DOTS CHALLENGE

Research the reverberating effects of losing one creature or ecosystem, like melting ice caps or bleaching corals. Link this occurrence back to your community. How is this connected to you through food systems, medicine, or something else?

EXAMPLE

RESEARCH

How do blue whales affect the ecology of the South Carolina Coast?

ACTION

Create a scavenger hunt to help your peers discover what you learned about whales and ocean ecosystems.

EXHIBITION

Have students complete the scavenger hunt and then sign a petition supporting ocean conservation.

For more examples of student projects, visit <u>www.WeAreUnstoppable.com</u>

STUDENT HANDOUT (C)

ASSESSMENT RUBRIC

Your work on the Unstoppable Schools Project will be assessed according to the criteria listed below.

This project is designed to help you master research and artistic expression skills while honing your ability to communicate, connect, collaborate, problem-solve, and take action. It's a chance to have a meaningful effect on the real world.

For each of the assessment criteria, your teacher will indicate with a check mark whether your work meets the standards of excellence for this class.

ASSESSMENT CRITERIA		Beginning to approach standards (B)	Approaching standards (A)	Meets standards (M)	Exceeds standards (E)
RESEARCH PHASE	You developed a clear research question				
	You wrote a 1-2 page literature review that clearly outlines the historical and scientific context of your work				
RESEARC	You completed a bibliography				
-	You made clear, evidence-based connections between your local community, climate science, and the environment				
	You wrote a 1-2 page action plan answering all four questions posed in the project overview				
	Your writing is clear and concise				
PHASE	You sought community support and/or connections to implement change				
ACTION PHASE	You created captivating material (a performance, a pitch, etc.) to raise awareness or propose a change				
	Your community action reflects a nuanced understanding of your research question				
	Your community action conveys scientific and/or historical context about your issue				

ASS	ESSMENT CRITERIA	Beginning to approach standards (B)	Approaching Standards (A)	Meets Standards (M)	Exceeds Standards (E)
	You worked with your teacher and class to plan an exhibition event for other students and/or community members				
N PHASE	You played an active role at your exhibition event				
EXHIBITION PHASE	You employed creative, engaging presentation tools to highlight your work				
	You were able to field questions about your Unstoppable Schools Project				
5	You communicated with your team and teacher early and often in the face of any roadblocks				
LEARNIN	You delegated tasks within your team so that everyone contributed to timely progress				
HABITS OF LEARNING	You used class time well to advance the state of your project				
Н	You implemented your action plan, step by step				
	You adjusted your action plan as needed				
		_			_

Overall Assessment: B A M E

Teacher Comments:





LESSON 2

Help students transform a broad topic of interest into a focused research question.

LESSON PLAN 2:

DEVISE A RESEARCH QUESTION

IDENTIFY A TOPIC OF INTEREST & REFINE TO A RESEARCH QUESTION

A classroom activity (over two class periods) with homework component

Essential understanding for this lesson:

Students will work together to identify areas of personal interest that relate to the local environment. Students will learn to distinguish qualities of a great research question and, after initial research, how to formulate one.

☞ INITIATE A RESEARCH TOPIC BRAINSTORM (20 min.)

Provide students with <u>Student Handout D</u>. Walk them through STEP 1: Research Topic Brainstorm. Brainstorm as a class, in small groups, or individually.

TOPIC RESEARCH (Homework)

Students will complete STEP 2 by performing some initial research as homework. This step can be modified to take place in a school setting outfitted for research.

COACH STUDENTS ON REFINING THEIR RESEARCH TOPIC (30 min.)

Walk students through STEP 3: Formulating a Research Question. (They may complete Step 4: Revising and Narrowing a Research Question in class or for homework.) Once students complete all 4 steps, they should have a working research question to guide their project.

If students' research takes an unexpected turn, remind them it is always OK to revise their research question as long as it remains NARROW, CLEAR, and COMPLEX.

+ NEXT STEPS:

Students can use the <u>Assignment Tracker</u> to start planning their research work. This might include interviewing members of the community, searching through peer-reviewed science journals, and incorporating information from books, periodicals or the local newspaper.

Set a due date for students to complete their literature review.

STUDENT HANDOUT (D)

THE SECRET TO DEVELOPING A GREAT RESEARCH QUESTION

STEP ONE: Research Topic Brainstorm (20 min.)

A **research topic** is a subject that you are genuinely interested in, which somehow relates to your area of study.

Getting started:

What are you curious about? Did the film make you curious about a certain topic? Is there a special place in your city or town that you feel passionate about protecting? Is there anyone in your family that has a health issue that may relate to the environment? Have you read anything crazy in the news lately?



Sometimes you don't know much about the topic, so it's okay to phrase it as a question, such as:

- · How much electricity does our school building use?
- How are t-shirts made?
- What was here before my house or apartment was built?

Think of at least five research topics that you're curious about:

1.	
2.	
3.	
4.	
5	

Decide on your top two research topics. Which topics will likely remain complex and interesting to your team as you research? Which topics seem possible to research thoroughly in the time provided?

STEP TWO: Preliminary Research (Homework, 30-40 min.)

Do a few quick internet searches to find out some basic information about your top two topics.

Write a paragraph about each research topic that includes the following information:

- 1. Key definitions and basic information about the topic
- 2. What is currently being addressed or ignored locally, nationally, globally
- 3. Why the topic interests you and how it's related to your local community

At school, go over this preliminary research with your team, your teacher, and/or your other classmates. Select one final research topic to pursue in your Unstoppable Schools Project!

STEP THREE: Formulating a Research Question (10 min.)

Now that you have chosen a research topic, the next step is to **narrow your investigation** to one aspect of your topic. (For example: Instead of researching everything about fish, research HOW a certain fish is caught and processed before it reaches your grocery store.)

Start asking "Why" and "How" questions informed by the basic information you already know about your topic. The narrower, the better. Think local. A good research question should be:

- INTERESTING to you (because you'll be thinking about it for a while)
- CLEAR (and concise)
- COMPLEX (not easily answered with a yes or no; requiring analysis)
- NARROW (if your focus is too broad like, "how do we save the oceans?" you will not be able to come up with a doable action plan)

Examples:	Why is single-use plastic so common at my school?
	How could our school replace single-use plastic?

Brainstorm up to 5 WHY and HOW questions about your chosen topic:

1.	
2.	
3.	
4.	
_	

STEP FOUR: Narrowing your Research Question (15-20 min.)

Here are some "pretty good" research questions other Unstoppable Students have used to guide their research, action, and exhibition.

Reflect on each question below. What makes this is a good research question? Can you improve them by making them more interesting, complex, concise, and narrow?

Some might be clear, but not complex, while others complex, but not narrow or actionable:

- Why do so few homes in Charleston, South Carolina have solar panels?
- What development has contributed to pollution and ecological collapse in my neighborhood?
- What can be recycled in my city, and how can I inform more people about this?
- · How can we reduce traffic in Mt. Pleasant?
- · How can we address over-packaging?
- How will the city's proposed harbor dredging project affect the environment?
- How will the current human-caused "6th mass extinction" affect our community?
- · Where do the microplastics in our water supply come from?
- · How do plastics affect our beach ecosystem?
- What would it take for restaurants on main street to compost?
- · What is causing sea-level rise?

Now, improve your own research question! Use the space below to draft a better version of your research question.

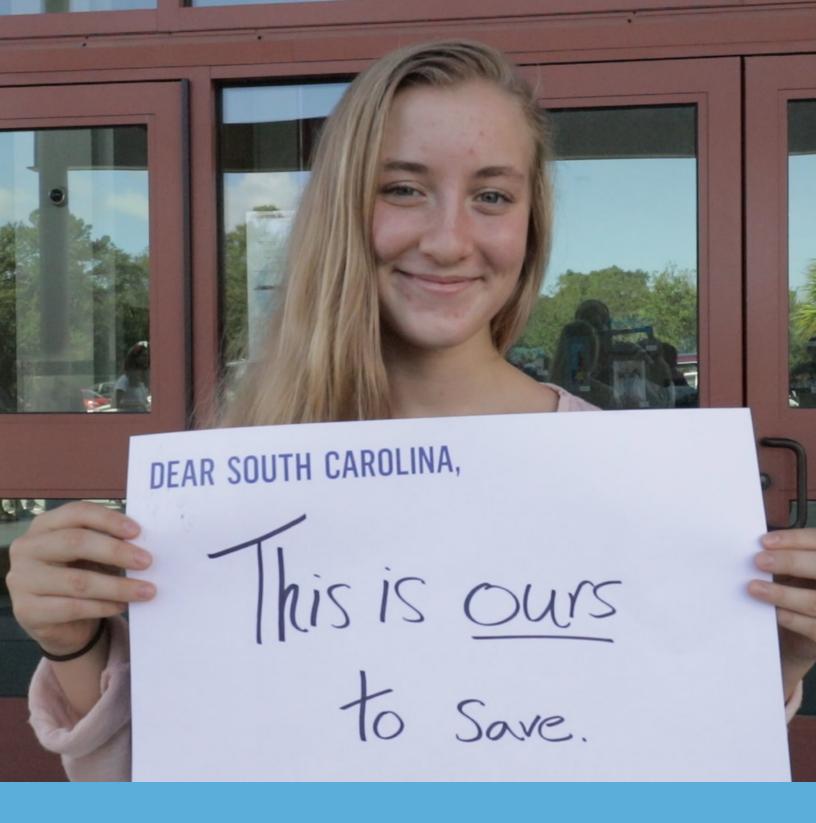
Final(ish) Research Question:

Is it: Concise?	Narrow?	Actionable?	Complex?

STEP FIVE: Begin planning & investigating (Classwork & homework)

Let this question guide the research phase of your project. Next, you'll find videos, interview subjects, articles and reports to help answer your research question. Then, you'll summarize your findings in a 1-2 page literature review. Explain what others have already discovered in relation to your research question, and note where there are gaps in knowledge that your team can attempt to resolve. In addition, include a bibliography listing the sources used in your literature review.

Please refer back to the <u>Project Overview (Student Handout A)</u> throughout this process! The overview will help you organize the Research, Action and Exhibition phases of the project. Meet with your team to plan and delegate tasks, inputting them into the <u>Assignment Tracker</u> to stay on track. Have fun taking your work out into the wild!





LESSON 3

Prep students to connect with adults and synthesize information about the human-environment relationship.

CHECK YOURSELF

A CLASSROOM ACTIVITY AND 2-PART HOMEWORK ASSIGNMENT

Essential understanding for this lesson:

Students will practice interview and conversation skills in preparation for building mentor relationships for their projects. Students will discover more about their own consumption habits and synthesize the information in a 1-page reflection.

CONSUMPTION ESTIMATES EXERCISE (10 min.)

Students will need a piece of paper and a writing utensil.

Ask students to estimate the following. (Reminder: It's okay to take WILD guesses!)

- 1) How many pounds of trash does the average American make each day?
- 2) What household utility uses the most energy?
- 3) How much money do schools (K-12) spend on energy every year?
- 4) How many new jobs have been created by the solar industry?
- 5) What country consumes the most energy? What about the 2nd most?
- 6) How long could you run a computer with the energy saved from recycling 1 soda can?
- 7) How many plastic bottles do Americans throw away every hour?
- 8) How many cell phones are thrown away every year?
- 9) How many US cities make 100% of the energy they use from renewable sources?
- 10) What percent of America's disposable waste gets recycled or composted?

Answer key:

- 1) 4 pounds
- 2) Heat and air conditioning
- 3) \$6 B (more than books and computers combined)
- 4) Approx. 750,000 jobs
- 5) China (1.3 B residents), USA (311 M residents)
- 6) 3 hours
- 7) 2.5 million bottles each hour
- 8) 35 million
- 9) 6 US cities. (Aspen, CO; Burlington, VT; Georgetown, TX; Greensburg, KS; Rockport MO; and Kodiak Island, AK.)
- 10) 35%

DEBRIEF (10 min.)

Were any of these facts and figures particularly surprising?

INTRODUCE HOMEWORK (10 min.)

Take a few minutes to go over <u>Student Handout E: Consumption Homework Assignment</u> with students. They will be talking to an adult in their family about household energy consumption and waste, how much that costs in dollars, and what the additional environmental cost might be. They will discuss possible lifestyle changes aimed at minimizing consumption and waste. Next, they will synthesize that information, relating it back to the content in *Chasing Coral* in a one page reflection paper.

+ NEXT STEPS

Now that students have some practice approaching adults, they can start to reach out to potential mentors for their Unstoppable Project. An optional homework assignment could be crafting a letter to a potential mentor about the guidance they seek for work or research on their project.

The reflections students write about their own consumption may be a nice addition to your Unstoppable Schools Project Exhibition. You can also send the reflections to the *Chasing Coral* team by emailing: education@exposurelabs.com. We love to read them!

STUDENT HANDOUT (E)

CHECK YOURSELF

Consumption Homework Assignment (RESEARCH: 30 min. / WRITING: 45 min.)

▶ RESEARCH: What are your consumption habits and how can we change them?

Choose one of the forms of consumption below and talk to an adult in your household about it. You might also consult a water or electric bill, or call a utility company.



TRASH

How often does someone in your house take out the trash? How many times a week? How many times a year? Where does it all go?



RECYCLABLES

What do you recycle? Where does your recycling go when it leaves the house? What is it actually turned into? What recycling services are available locally?



ENERGY

Who provides the energy for the electricity in your house? Where does it come from? How is it made? Which household objects use the most energy?



WATER

Where does your tap water come from? How is it processed before it gets to you? How much do you use, including showers, etc.? Where does it go once it's down the drain?





How is your home heated? Is the source electric or gas? What type of gas? Where does that come from? What household habits affect how much heat you use or lose?

WRITING: Write a one-page reflection paper

After your research, write a one-page reflection on your findings. Make sure to address the 4 questions below, along with any other interesting tidbits.

- 1. Make hypotheses for how habits at home connect back to your research question.
- 2. What are the challenges that prevent people from changing their habits? How might you overcome those challenges?
- 3. What's a reasonable goal for changing your family's habits of consumption?
- 4. What would be a NEXT LEVEL EXTREME goal for reducing your family's consumption? What would it take to accomplish that?

PROJECT TIMING ESTIMATES

This is intended to serve as an estimate to aid in planning. We encourage teachers to expand or contract any aspect of this project to best serve the unique needs of their students and classrooms.

CLASS TIME	HW TIME	TASK	MODIFICATION	
FILM & INTRODUCTION				
1.5-2 hours		Intro Film // Screen Chasing Coral		
1-1.5 hours		LESSON PLAN 1 // Intro Project		
~2 hours	~2 hours	LESSON PLAN 2 // Student groups choose a challenge and develop a research question		
RESEARCH PH	HASE			
~1 hour	~6 hours	Students research and write literature review and bibliography	Option for more in-class / library hours for research	
~1 hour	~2 hours	LESSON PLAN 3 // Students practice communication skills in preparation for connecting with a project mentor	Could take place during or before research phase	
~1 hour	~2 hours	Student groups pursue project mentors	Use class time to brainstorm local leaders or practice outreach	
~0.5 hour	~3 hours	Students interview mentors; debrief in class		
ACTION PHAS	SE			
	~4 hours	Student groups create action plans; submit for teacher review	Short, in-class check-ins so students can compare research and progress	
~2 hours	~5-15 hours	Students implement action plans	Best to allow ample time for this (3 weeks). Class time allotted for check-ins.	
EXHIBITION PHASE				
1-4 hours	~0.5 hour	Plan exhibition, including a list of all resources you will need (i.e. posters, lighting, microphone, projector)	Time commitment depends on exhibition	
1-2 hours	1-2 hours	Coordinate & host Exhibition Event for students to share work	This may be a heavier lift for teachers and admin than other project phases	
~1 hour		Debrief project with students. Students submit project components for final assessment		