

CHASING TIME



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CHASING TIME

Directed by Jeff Orlowski-Yang and Sarah Keo

2024 | USA | 39 min

TEACHER'S GUIDE

This guide has been designed to help teachers and students enrich their experience of *Chasing Time* by providing support in the form of questions and activities. There are a range of questions that will help teachers frame discussion with their class, activities for before, during and after viewing the film, and some weblinks that provide starting points for further research or discussion.

The Film

If a single photo can inspire change, how influential are a million images? Over the course of the 15-year Extreme Ice Survey project, photographer James Balog and his team brought some of the world's first and most compelling visual evidence of climate change to the global stage as he depicted the rapid melting of glaciers around the world. Thoughtfully helmed by acclaimed director Jeff Orlowski-Yang (*Chasing Ice*, *Chasing Coral*, *The Social Dilemma*) and first-time filmmaker Sarah Keo, *Chasing Time* is a meditative exploration of time and mortality, following James and his crew as they bring the decades-long project to a close, cataloging more than one million images in the process. The short documentary reunites James and the Emmy Award-winning team behind *Chasing Ice* to capture the end of the epic undertaking and spotlight the power of an intergenerational effort to seed hope and inspire action toward a sustainable future. A beautiful tribute to the power of images and the importance of mentorship, the team examines the legacy their efforts have made on the world.

Source: [Exposurelabs.com](https://exposurelabs.com)

The Filmmakers

Jeff Orlowski-Yang is the founder and creative director of Exposure Labs, a film and impact production studio that uses stories to change the world. Orlowski-Yang directed the Sundance-premiering, Emmy-winning documentaries *The Social Dilemma* (2020), *Chasing Coral* (2017) and *Chasing Ice* (2012), which were seen

by hundreds of millions worldwide and screened everywhere from classrooms and local communities to Capitol Hill and the United Nations. Orlowski-Yang has travelled on tour representing the Sundance Institute, President Obama's Committee for the Arts and Humanities, and the National Endowment of the Arts, among many other speaking and press engagements. He lives in Boulder, Colorado.

Sarah Keo is a Cambodian-American filmmaker from Seattle, Washington. After receiving a Bachelor of Business Administration from the University of Washington, Sarah pursued her childhood dream of telling stories and changing the world, believing that film was the perfect medium to do both. Her first venture into filmmaking was as the production coordinator on Jeff Orlowski-Yang's Emmy-winning documentary, *The Social Dilemma*. Since then, Jeff and Sarah have co-directed a short documentary film together called *Chasing Time*, in what will be Sarah's directorial debut. Sarah currently resides in Denver, Colorado and is a 2024 Cine Fe Fellow.

Source: www.hotdocs.ca

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VIEWING THE FILM WITH STUDENTS

The following three sub-sections are intended to provide you with a range of Pre-Viewing, Viewing and Post-Viewing activities. They are followed by a set of questions based upon the film's larger thematic domains, some follow-up questions and quotations, sample curricular outcomes and a page of weblinks for further investigation.

Pre-Viewing Activities

Show students the poster for the film found on the [film's production website](#). Have students work in small groups to try and identify themes or ideas conveyed by the poster. As a larger group, discuss with students how effective the poster is as a media piece.

After watching the trailer, have students complete a KWL chart. In the K column, write notes on what you already know about glaciers/climate change, and/or the documentary. In the W column, ask questions that you would like answered. Complete the L column after you have watched the documentary.

Print several of the questions or quotations from the Extension Activities section of this guide on individual sheets of paper. Have students work in small groups or with partners to discuss if they agree with the ideas.

Set a purpose for viewing by having a discussion about one or more of the questions or quotations from the Extension Activities section of this guide. Have them share the statement and what they think or believe about it with the class.

Watch the [National Geographic Education](#) video "Climate 101: Glaciers," which has a running time of 3:50, to understand more about glaciers and how they are rapidly melting due to the warming climate. Search for the title of the video to find it on the website.

Watch the 58-second [time-lapse video](#) of the Mendenhall Glacier in Alaska receding between 2007 and 2014 from the Extreme Ice Survey project.

Discuss the concept of time-lapse photography with the class. Discuss how time-lapse photography can help visualize nature processes happen too slowly for human eyes. Watch the [National Geographic](#) "Time-Lapse Photography" video. Search for the title of the video to find it on the website.

Have students get into groups to review several graphics about climate change issues and "[Vital Climate Change Graphics](#)" by the United Nations Environment Programme (UNEP) and GRID-Arendal which focuses on the environmental and socio-economic impacts of climate change. Search for the title of the graphic collection to find it on the website.

Viewing Activities

Have students jot down five ideas for discussion, or questions that the film raised in their minds.

Have students record the different film techniques during the film. Some of these include aerial shots, slow motion and time-lapse photography. Discuss the usefulness of each technique.

Have students note the various uses and types of music used throughout the movie and connect it to a theme or mood the filmmaker was trying to convey.

Have students consider the following questions while watching the film: What's where? Why there? Why care? What next?

Have students record all the interrelationships they find in the film. These could include human to human, human to natural, natural to human or natural to natural.

Have students use a Venn diagram to compare the Arctic as it was 30 years ago to the Arctic of today.

Have students jot down two to three ideas for discussion, or questions that the film raises in their minds. As an Extension and/or Post-Viewing Activity, students can enter their questions into an online response or polling system and can vote on the questions or issues they would like to explore in further detail. Encourage students to use multiple levels of Bloom's Taxonomy.

Post-Viewing Activities

Show the students their quotations from the Pre-Viewing Activity and see if their opinions were changed, altered or enhanced by the film.

Assign some of the questions and quotations from the Extension Activities section of this guide for homework to be taken up the next day in class. Check for completion.

Have students complete an exit note (a single small sheet of paper with one phrase or idea written on it) that demonstrates one thing they have learned, felt or decided as a result of watching the film.

Discuss with students their initial reactions to the various scenes and situations addressed in the film.

Do a follow-up of the KWL chart Pre-Viewing Activity. Students will work with an elbow partner to review the questions posed in column two of the KWL chart and complete column three.

Have students choose one of the events from the film and write a diary entry as if they were part of the event.

Create eight groups and assign each group a different photo from the [Extreme Ice Survey Iceland Photo Gallery](#). Have students use a white board to answer some or all the following observations on their photo and then share to the class.

Observe: Identify and note details

- What type of image is this (photo, painting, illustration, poster, etc.)?
- What do you notice first? Describe what else you see.
- What's happening in the image?
- What is the physical setting? Is place important?
- Are there details that suggest the time period this image relates to? Is the creation date listed in the bibliographic record? If the creation date is listed, was this image created at or around the same time period the image relates to?
- What other details can you see?

Reflect: Generate and test hypotheses

- What tools might have been used to create this image?
- Why do you think this image was made? What might have been the creator's purpose? What evidence supports your theory?
- Why do you think the creator chose to include these particular details? What might have been left out of the frame?
- Who do you think was the audience for this image?
- What do you feel when looking at this image?
- What was happening during the time period this image represents? If someone made this image today, what would be different/the same?
- What did you learn from examining this image? Does any new information you learned contradict or support your prior knowledge about the topic or theme of this image?

Source: Barat Education Foundation, [Image Analysis Guiding Questions](#)

Have students visit the [Extreme Ice Survey](#) website and create a story map using an online mapping program on some of the locations mentioned in the film. Some of the glaciers included Solheim, Fláa and Svinafell in Iceland, Mendenhall and Columbian in Alaska, Trift in Switzerland and Tahumming and Bridge in British Columbia. For their selected locations, they can answer the questions: What's where, why there, why care and what next?

Show students the [TED Talk](#) from James Balog titled "Timelapse Proof of Extreme Ice Loss," which discusses image sequences from the Extreme Ice Survey. Search for the title of the talk to find it on the website. Ask the class what has changed since 2009.

Have students gain a better understanding of the impacts of sea levels rising to global communities. Show students the infographic titled "Sea Level Rise" from [NASA's Global Climate Change](#) website. Search for the title of the infographic to find it on the website.

Have students visit the [interactive map](#) made by NASA, illustrating sea levels rise of up to 60 metres. Split the class into seven groups based on the land divisions organized on the website: Europe, North America, South America, Africa, Southeast Asia, China and Japan, and Australia. Have each group raise the sea level in increments of five metres, starting at five metres and going up to 60 metres, while identifying the populations and areas most at risk of suffering damage from coastal flooding. Have them discuss some of the issues around climate change refugees and where some of these populations would migrate to.

James said, "The ice will be a representation to the people 100 years from now of how badly this civilization failed." Ask students to hypothesize about how the world's climate could change over the next 100 years if humans do nothing to limit the levels of their greenhouse gas emissions. Have them also make predictions about the effects such climate changes could have on humans in 100 years.

Ask students to write between two and three persuasive paragraphs to answer the following questions: In your opinion, how is climate change an imminent world threat? Based on your opinion, what actions do you believe should be taken to address the issue?

Show students various climate change stories such as a [TED Talk](#) from Anote Tong titled "My Country Will Be Underwater Soon—Unless We Work Together," where he discusses his country's present climate catastrophe and its imperiled future. You can find the video by searching the website. The [Climate Atlas of Canada](#) includes many Canadian stories around how climate change affects different parts of Canada.

Have students visit "[Climate Stories Map](#)," an educational and artistic forum for sharing personal stories about the changing climate. Have students listen to three stories and summarize some highlights. Search for the title of the project on the website.

Have students use social media to share an environmental portrait of someone taking positive steps to protect the Earth. Using #CANClimateAction, have students share their climate solutions by posting tweets and photos on X, Facebook and Instagram.

Photography is a form of art, and can be a part of storytelling, especially in its digital form. One indication the art of photography has become its own form of storytelling is the phrase "a picture is worth 1,000 words." Take students outside to a local park and have them take a photo of something in nature. Have them create a photo essay connecting it to a theme or course concept.

Have students read a [BBC](#) article titled "Iceland's Okjokull Glacier Commemorated With Plaque." You can find the article using the search function on the website. Have students write a letter to the future about the impacts of our society on the environment.

Have students write a letter to a member of Parliament or a company executive, outlining their views and solutions for a Canadian climate change issue. The assignment and rubric, titled "Fighting an Environmental Wrong With an Environmental Write" can be found on the following pages.

WEBSITES AND ONLINE RESOURCES

About the Film and its Subject

Film's website: <https://www.exposurelabs.com/chasingtime>

Filmmaker's Instagram: @Exposurelabs

Filmmaker's X: @ExposureLabs

Filmmaker's Facebook: Exposure Labs

Additional Resources

Climate Atlas of Canada: Stories and explanations about climate change, and local climate data that can be explored using maps and graphs.

<https://climateatlas.ca>

Dive Deeper: An interactive learning experience examining some of today's most important environmental challenges and solutions based on *The Water Brothers* TV series. The fourth episode on climate change in Canada explores how our water resources are increasingly being affected by climate change.

<https://www.divedeeper.ca>

Earth Vision Institute: Earth Vision Institute (EVI), founded by photographer, author and scientist James Balog in 2012, is a donor-funded organization dedicated to creating groundbreaking insights about the relationship between humanity and the rest of the natural world.

<https://earthvisioninstitute.org>

Environment Canada: Environment Canada lists its actions on climate change.

<https://www.canada.ca/en/environment-climate-change.html>

Extreme Ice Survey: Founded in 2007 by James Balog, the Extreme Ice Survey (EIS) is an innovative, long-term photography program that integrates art and science to give a "visual voice" to the planet's changing ecosystems.

<http://extremeicesurvey.org>

The Indigenous Climate Hub: A unique online community of Indigenous climate change leaders that have come together to share their stories and climate change adaptation experiences.

<https://indigenousclimatehub.ca>

Indigenous Peoples Atlas of Canada: In the Inuit section read about climate change, sea ice and permafrost.

<https://indigenouspeoplesatlasofcanada.ca/> Select Inuit, then select any of the three subtopics.

NASA, Global Climate Change: A website with interactive data links for Arctic sea-ice cover, carbon dioxide levels, sea levels, global temperature and land-ice cover offers an excellent visual resource with graphs, interactive maps and videos on global climate change.

<http://climate.nasa.gov>

Natural Resources Defense Council: Their mandate is to confront the climate crisis, protect the planet's wildlife and wild places, and to ensure the rights of all people to clean air, clean water and healthy communities. There are several sections around climate change issues and solutions.

<https://www.nrdc.org>

WWF: Some of the environmental organization's campaigns are oceans and climate change are outlined here

<https://wwf.ca>

EXTENSION ACTIVITIES AND DISCUSSION QUESTIONS

At the start of the film, James reflects on the scope of his films and the Extreme Ice Survey. "In this project, there's this great mystery of time." What does "chasing time" mean? Are we chasing time or is time chasing us?

James's story was an important part of the film. Why do filmmakers use personal stories in their documentaries?

James said, "I've been dreading taking down this camera. Taking it down marks the end of something that's been incredibly important to me." Why is it so hard for James to take down the last camera in Iceland? What is the legacy their efforts have made on the world?

Discuss the implications of sea levels rising at a local, regional and global level.

Climate change is becoming one of the most pressing issues affecting humans. Why are we not addressing the issue as we should? Why is the state of our environment hard to convey to the general public? What role does the media play in the climate change issue?

Climate change is affecting many different parts of our world. List all the ways climate change is affecting our lives.

Why does society stay oblivious to major catastrophic events like climate change and coastal flooding? What other examples can you attribute to our obliviousness?

Analogies are often used to describe something. How is this new project like a relay race? How are ice fragments valuable like diamonds?

How do you say thank you to someone who has changed your life?

James stated near the end of the film: "No one picture can change the world." But his photography and stories have reshaped our view on climate change. What is the power of an image? What story has James been able to tell through his photography?

Dr. Hrafnhildur Hannesdóttir, a glaciologist from Iceland, stated at the end of the film that "we have the glasses to read all of this, but somehow we are not able to transfer this into a language that everybody is getting." How can we empower an intergenerational effort to seed hope and inspire action toward a sustainable future?

QUOTATIONS FROM THE FILM TO EXPLORE

1. *"You could feel the death of the glacier. That's when I realized, oh my God, you can make a picture of that, you can actually put a frame around that and say something that would grab the human heart."*
James Balog
2. *"Long after these landscapes have vanished, long after everyone alive has vanished, there will be a record of these transitory features that will be preserved in the pictures."* James Balog
3. *"There was this whole other avenue that I really learned from Jim around seeing the way he saw the world, seeing the way change happened, the way he thought about time and place and landscapes."* Director Jeff Orlowski-Yang
4. *"There's a truth about nature that I'm trying to address from the arts angle, from the science angle, from the physical exploration angle, and in some very significant sense, from a spiritual angle."* James Balog
5. *"I feel like my life has a purpose in doing this. It really makes sense and it's what I was put here to do."*
James Balog
6. *"Back in the beginning of the Extreme Ice Survey, people talked about climate change as being abstract and somewhere out of the future. The cameras brought tangible, visual evidence of climate change to life."* James Balog
7. *"The biggest thing I've learned from Jim is perseverance.... Some things you just gotta do. And you realize there's no shortcuts in some things in life."*
Svavar Jónatansson, James' field assistant
8. *"It's clear we have the measurements. The facts are here. It's not something you have an opinion on. It's just science."* Dr. Hrafnhildur Hannesdóttir, glaciologist, Icelandic Meteorological Office
9. *"Being an island of volcanoes and glaciers, I feel like we are losing a part of our identity."* Dr. Hrafnhildur Hannesdóttir
10. *"The ice is not this big static, cold, dead thing. Also, the rocks are not dead and static. There's a life that is on a different time scale than what people normally perceive. These are living, breathing places."* James Balog
11. *"Seeing the mortality of these glaciers has continued through the years to teach me that everything is transitory."* James Balog

CULMINATING ACTIVITY: FIGHTING AN ENVIRONMENTAL WRONG WITH AN ENVIRONMENTAL WRITE

In this assignment, you will write a letter to a member of Parliament, other type of elected representative or a company executive, outlining your views and solutions for a climate change issue. Politicians and company executives are generally very concerned with public opinion and as a result, any letter they receive has the potential to make an impact on any future decisions they may be involved with or pertain to a given issue. A well written, well-aimed letter can be a very powerful lobbying tool when it comes to making decisions that deal with environmental issues. Naming the specific person who owns the company doing the polluting or the minister in charge of a particular ministry is much more effective than "general-type" letters.

During the research phase of this assignment, gather the facts outlining the key points on both sides of an issue that pertain to climate change. Once your research has been completed, the letter-writing process begins. You are required to write to government and/or industry officials at the local, provincial or national level.

Each letter must include relevant facts including why you are personally interested in this issue. All letters must be typed. Writing style, spelling, grammar, sentence structure, expressing yourself well and providing the facts without undue personal bias will be taken into account during the evaluation of the letter.

You may select one of the climate change issues listed below or you can select one of your own:

- Oil exploration/mining
- Agricultural runoff
- Agriculture producing methane
- Water pollution, e.g., Pacific Gyre, urban runoff
- Coral reef bleaching
- An increase of CO₂ due to overpopulation
- Melting glaciers, icebergs and ice sheets
- Animals becoming extinct or endangered because of climate change
- Deforestation (clearcutting, slash and burn)

ACTIVITY RUBRIC: FIGHTING AN ENVIRONMENTAL WRONG WITH AN ENVIRONMENTAL WRITE

Knowledge and Understanding

	2.5 2.9	3.0 3.4	3.5 3.9	4.0 5.0	
Shows a clear understanding of issue(s)	Demonstrates a limited understanding of the selected issue(s)	Demonstrates a moderate understanding of the selected issue(s)	Demonstrates a considerable understanding of the selected issue(s)	Demonstrates an excellent and in-depth understanding of the selected issue(s)	/5

Thinking and Inquiry

	2.5 2.9	3.0 3.4	3.5 3.9	4.0 5.0	
Ability to research, synthesize and organize additional resources	Demonstrates a limited ability to research, synthesize and organize additional resources	Demonstrates a moderate ability to research, synthesize and organize additional resources	Demonstrates a considerable ability to research, synthesize and organize additional resources	Demonstrates an outstanding ability to research, synthesize and organize additional resources	/5

Application

	2.5 2.9	3.0 3.4	3.5 3.9	4.0 5.0	
Expression and organization of ideas	Expresses and organizes ideas and understandings with limited effectiveness	Expresses and organizes ideas and understandings with some effectiveness	Expresses and organizes ideas and understandings with considerable effectiveness	Expresses and organizes ideas and understandings with a high degree of effectiveness	/5

Communication

	2.5 2.9	3.0 3.4	3.5 3.9	4.0 5.0	
Writing	Communicates in writing with limited effectiveness	Communicates in writing with some effectiveness	Communicates in writing with considerable effectiveness	Communicates in writing with a high degree of effectiveness	/5

Comments:

Total: ____ /20 = ____ /100

EXAMPLES OF CURRICULUM EXPECTATIONS

COURSE	OVERALL EXPECTATIONS
Grades 7 & 8 Languages	- demonstrate an understanding of a variety of media texts. - identify some media forms and explain how the conventions and techniques associated with them are used to create meaning. - create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques.
Grade 7 Geography	- analyze some challenges and opportunities presented by the physical environment and ways in which people have responded to them. - use the geographic inquiry process to investigate the impact of natural events and/or human activities that change the physical environment, exploring the impact from a geographic perspective. - demonstrate an understanding of significant patterns in Earth's physical features and of some natural processes and human activities that create and change those features.
Grade 7 Science	- assess the impacts of human activities and technologies on the environment, and evaluate ways of controlling these impacts. - investigate interactions within the environment, and identify factors that affect the balance between different components of an ecosystem. - demonstrate an understanding of interactions between and among biotic and abiotic elements in the environment.
Grade 8 Science	- assess the impact of human activities and technologies on the sustainability of water resources. - demonstrate an understanding of the characteristics of the earth's water systems and the influence of water systems on a specific region.
Grades 9–12 English	- generate, gather and organize ideas and information to write for an intended purpose and audience. - identify some media forms and explain how the conventions and techniques associated with them are used to create meaning. - demonstrate an understanding of a variety of media texts.
Grade 9 Geography	- apply in everyday contexts skills, including spatial technology skills, developed through the investigation of Canadian geography, and identify some careers in which a background in geography might be an asset. - analyze various interactions between physical processes, phenomena, and events and human activities in Canada. - analyze characteristics of various physical processes, phenomena, and events affecting Canada and their interrelationship with global physical systems. - describe various characteristics of the natural environment and the spatial distribution of physical features in Canada, and explain the role of physical processes, phenomena, and events in shaping them. - analyze issues relating to the sustainability of human systems in Canada.
Grade 9 Science	- assess the impact of human activities on the sustainability of terrestrial and/or aquatic ecosystems, and evaluate the effectiveness of courses of action intended to remedy or mitigate negative impacts. - investigate factors related to human activity that affect terrestrial and aquatic ecosystems, and explain how they affect the sustainability of these ecosystems. - demonstrate an understanding of the dynamic nature of ecosystems, particularly in terms of ecological balance and the impact of human activity on the sustainability of terrestrial and aquatic ecosystems.
Grade 10 Civics	- analyze key rights and responsibilities associated with citizenship, in both the Canadian and global context, and some ways in which these rights are protected. - analyze a variety of civic contributions, and ways in which people can contribute to the common good. - analyze a civic issue of personal interest and develop a plan of action to address it.

Grades 10–12 Media Arts	• demonstrate an understanding of the critical analysis process by examining, interpreting, assessing and reflecting on media art works. • demonstrate an understanding of how media art works reflect personal and cultural identity, and affect personal, cultural and community values and their awareness of those values.
Grade 11 Geography	• assess quality of life in the selected region, including factors that contribute to quality of life and policies/programs that aim to improve it. • analyze issues associated with sustainability and stewardship of natural resources in the selected region. • analyze the role and involvement of intergovernmental organizations in the selected region. • explain how climate, including climate change, and natural hazards affect the selected region. • analyze the role of physical processes and human practices in maintaining a sustainable natural environment. • analyze the impacts of human activities on the earth's physical processes and the natural environment. • analyze the influence of physical processes and features on human activity. • analyze impacts of physical processes and disasters on human and natural systems, locally, nationally, and globally. • assess the role and effectiveness of various options for reducing the impacts of disasters on human populations. • describe how the Earth's natural systems change, and have changed, over various time scales, and explain some of the processes that cause these changes. • analyze strategies for the protection of natural and cultural resources that are essential to tourism, and assess their effectiveness. • analyze impacts of environmental conditions and concerns on the tourism industry. • use a variety of spatial technologies to help them assess human activities and plan and promote the sustainable use of the natural environment, including natural resources, in their local community or area. • use a variety of spatial technologies to analyze the impact of human activity on the environment in their local community or area and beyond, and identify possible solutions.
Grade 11 Media Studies	• demonstrate understanding of a variety of media texts. • deconstruct a variety of types of media texts, identifying the codes, conventions and techniques used and explaining how they create meaning.
Grade 11 Politics	• identify and analyze a political issue, with the goal of developing a personal plan of action to address this issue. • identify a goal associated with the selected issue and construct an action plan to achieve that goal. • analyze and reflect on possible outcome(s) of their plan.
Grade 11 Science	• investigate environmental factors that can affect human health, and analyze related data. • demonstrate an understanding of various environmental factors that can affect human health, and explain how the impact of these factors can be reduced. • analyze selected current environmental problems in terms of the role human activities have played in creating or perpetuating them, and propose possible solutions to one such problem. • demonstrate an understanding of the ways in which environmental factors can affect human health and how their impact can be reduced.
Grade 12 Geography	• assess ways in which stewardship practices can contribute to the sustainability of human settlements. • describe ways in which human societies modify their local environments in order to meet economic, social, political and other needs, and assess the effects of these modifications on sustainability. • assess the contributions of stewardship initiatives by groups and individuals to the sustainable use and management of natural resources, locally, nationally and globally.

The Overall Expectations listed above are from the *Ontario Curriculum*. Complete course descriptions, including all Overall and Specific Expectations can be found at: <http://www.edu.gov.on.ca/eng/teachers/curriculum.html>