

Chapter 1: What is Climate Change & Why Care?

Inquiry 3: Understanding Climate Change

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A. Provocation

To hook student interest, introduce the provocation to initiate student thinking.

Videos

Choose any or all of the 5 suggested videos to view, discuss and spark inquiry. These videos give solid background information on the concept of climate change, including the difference between weather and climate and the carbon footprint of food that we eat.

Jot down the questions that students generate after the video(s).

Video 1: [What's the Difference Between Weather and Climate?](#) [Climate Kids] - 2:01 minutes

This video explains the difference between weather and climate and how change can impact our world.

Video 2: [Climate Change: The environment for kids](#) [Smile and Learn] - 4:59 minutes

This video helps children to learn what climate change is, what can we do to stop it and take better care of our planet.

Video 3: [Climate Change for Kids | A fun engaging introduction to climate change for kids](#) [Learn Bright] - 11:34 minutes

This video explains climate change, we encourage teachers to watch the video and identify the teachable moments or sections for your age group.

Video 4: [Climate Change 101 with Bill Nye](#) [National Geographic]- 4:09 minutes

Climate change is a real and serious issue. In this video Bill Nye, the Science Guy,

explains what causes climate change, how it affects our planet, why we need to act promptly to mitigate its effects, and how each of us can contribute to a solution.

Bill Nye says that the most important thing to take away from this video is that ‘climate change is real and it’s happening.’ This is a simple statement supported by a lot of evidence, but it is something that is not agreed upon by everyone; why could this still be the case? How might it be slowing progress?

Video 5: [The Carbon Footprint of a Sandwich](#) [NPR’s Skunk Bear] - 3:05 minutes

Follow the path of a BLT sandwich, from field to plate.

The connection in this video between human activity and the carbon dioxide produced is not the most obvious one. Are you surprised at the impact of a slice of bread or a piece of bacon? Why or why not? Are there certain foods that you think would emit less greenhouse gases in production? How can you find out?

Possible Discussion Questions:

- What did you hear that surprised you?
- Did you learn anything new?
- Do you have any questions about climate change?



B. Question Generation

At this point in the inquiry, we want to harness students’ curiosity and build off the provocations that have captured their interest by generating meaningful questions to continue to drive the learning process. This section will outline pathways for question generation depending on the provocation(s) that your class engaged with.

Using the following [Creative Question Starts](#), have your students work in pairs or small groups to come up with as many questions regarding the information presented in the videos starting with: “Why...?”, “What if...?”, “What is the purpose of...?”, “How would it be different...?”, “What if we knew...?”, and “What would change if...?”



C. Knowledge Building

At this stage, students may be ready to engage in a group knowledge building activity. It will encourage students to open their minds to many alternative ways of thinking about the provocations and ideas that have been generated thus far in the inquiry process.

Intended for students to think about what they’re learning, use the [Stop and Jot](#) strategy to have students record their thoughts while pausing at various times in the lesson.

Or

Use the [Think, Pair, Share](#) strategy to build confidence, encourage greater participation and share what they're learning.

Example Activity:

After watching several or all 5 videos suggested above (or after viewing other relevant videos having to do with climate change), have students [Stop and Jot](#) down things they have learned on sticky notes. Only one piece of paper should be used for each thought. Alternatively, this could be done during and/or after each video as well. Once sufficient time has been provided, students should share their points with a peer using the [Think, Pair, Share](#) protocol.



D. Determining Understanding

Use responses to inform and guide the learning process. They can provide insight into which concepts need clarity, what students are already well informed about, and a general direction that students want to pursue.

Work with students to fill out the “Know” and “Want” columns of a [KWL \(Know-Want-Learned\) Chart](#) in relation to the [Stop and Jot](#) activity.

Sample KWL Chart:

TOPIC:		
K – What I Already Know	W – What I Want to Know	L – What I Learned



E. Pursuing Learning

At this stage, students may begin research to pursue their various questions, or some of the following activities could be integrated into the process to ensure that students have an understanding of foundational climate science. The activities listed below will enrich the understanding of climate change.

Try a [sensory walk](#) to have students explore new or different sensory experiences.

Example Activity: (this can be done during all seasons and weather!)

To make students aware of their environment using their senses, have them notice the weather on that particular day. If it is windy, can they feel the wind on their body parts? What direction is the wind coming from? Have them notice where the sun is and if they feel the heat. Have them notice the shape of the clouds. Are they moving? Do the shapes of the clouds remind you of anything? In the winter, if it is snowing, go outside and look at snowflakes closely. Look at your snowflakes and compare them with a friend, are they the same?

For other ideas on focused sensory walks, explore [A Walking Curriculum](#) by Gillian Judson. “Walking activities are designed to:

- **engage** the body, emotions, and imagination in ways that can increase familiarity with the local and natural contexts of school and learning;
- **increase** attention to detail, particularity and their connection with place;
- **connect** place-based learning activities with cross-curricular goals”



F. Consolidation

This step is designed to encourage students to integrate and synthesize key ideas. When students make connections and see relationships within and across lessons, this helps them to solidify knowledge and deepen understanding.

Have students synthesize their understanding by **“Tweeting” It Out!**

Example Activity:

In its inception, Twitter would only post tweets of 140 characters or less. More recently in 2021 they have doubled the limit to 280, although studies have found fewer words (70-100) to be most effective ([What’s the Ideal Length of a Tweet?](#)). With all of the information students have gained from the videos they’ve watched, have students summarize their learning in a “tweet” abiding by Twitter’s word count. They may wish to include hashtags as well to demonstrate their social media skills but also their understanding of the content as they know it to date.



Assessment Idea

Teachers will assess learning at different points throughout the inquiry using multiple methods. The following assessment provides an alternative evaluation method to standard quizzes and tests, that can be used after consolidation or at any point in the lesson to check for understanding.

Students are instructed to write down the positives, negatives and interesting features of a topic, question or situation using the [Plus, Minus, Interesting](#) strategy.

Example Activity:

Once students have watched any or all of the videos, have them work in pairs to identify the ideas presented in the videos that fit into each column. For example:

PLUS	MINUS	INTERESTING
List all of the positive ideas that were presented in the video(s).	List all of the negative ideas or problems that arise from the ideas presented in the video(s).	List all of the interesting ideas, neither positive or negative, that arise from the ideas presented in the video(s).



Take Action:

These ideas for action can be utilized at any point in the learning process, whether it's now or after completing more guided inquiries. Note, the suggestions are consistent in each chapter.

Allowing time for students to take action is an essential part of the learning process on climate change, as it empowers students and eases their eco-anxiety.

Ask the students what they want to do to positively impact climate change. List their ideas and come up with a plan to put their action in place.

Ideas for Taking Action:

- Educate your community about the risks posed by climate change
- Create posters that represent some of the local risks to your community
- Organize an assembly to present information in an engaging manner
- Perform a school-wide waste audit, and make a plan for a less wasteful path forward (one example is offered through EcoSchools at [School Waste Audit](#))
- Take a personal or class pledge to make lifestyle changes:
 - ○ Reduce meat intake
 - ○ Reduce use of single-use plastics
 - ○ Use eco-Friendly and/or reusable cups
 - ○ Walk or bike to school
 - ○ Use both sides of paper
 - ○ Turn off the lights when leaving a room
 - ○ Unplug things when not in use
- Plant trees

Action Project Examples:

Watch this video titled [‘Change the World’ in 5 minutes](#). It is about an elementary class who has decided that they would spend the first 5 minutes of school each day of the week implementing sustainable change to the world. It’s more of a movement that gives the youth the power to make a difference.

Visit [Young Voices for the Planet](#) for a myriad of ideas!

The mission of **Young Voices for the Planet** (YVFP) is to limit and mitigate the magnitude and impacts of climate change by empowering youth, through uplifting and inspiring success stories, to take an essential role in informing themselves, their peers and their communities—becoming leaders and changing laws, changing minds and changing the world.

“OUTDOOR ED PROJECT: OUTDOOR LEARNING IS WHERE IT’S AT!”-Father Fenelon Catholic School- Pickering, ON (2017) K-8

- The students decided how to create different learning areas in the outdoors. As small groups committed to designing and implementing ideas, student teams worked to create the areas for climate change learning in their schoolyard. They believe that it is vital for students to be a part of the learning outdoors and create a strong connection to their learning environment. Students from Kindergarten to Grade 8 were involved in ensuring that the project continues to be part of their learning at school. [See their project here.](#)