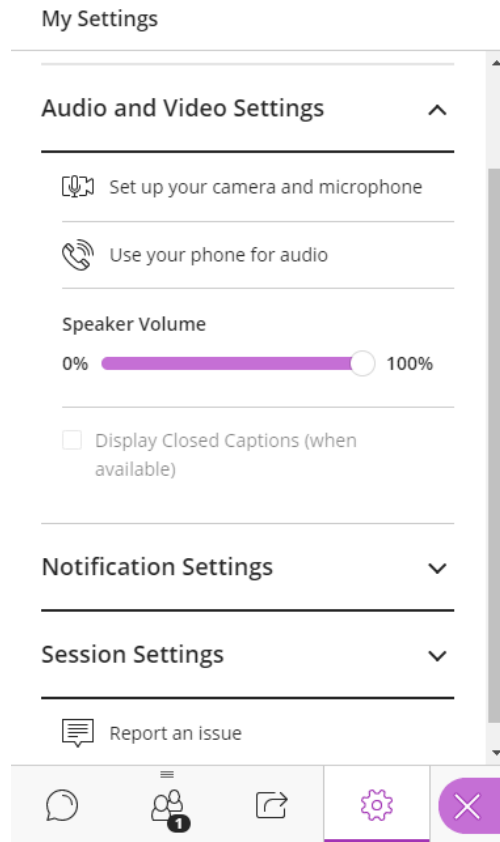
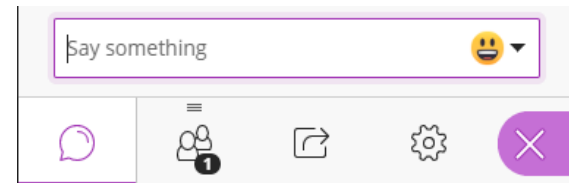


Before we get started...

- 1) Open the Collaborate panel (bottom right of screen)
- 2) Click on the gear icon for settings
- 3) Check your audio & notification settings



Controls: Test muting and unmuting, raising your hand, and providing feedback



Chat: Feel free to use the chat to interact with your colleagues and the moderators.

Adapting Experiential Learning for Remote Delivery – [Webinar Series](#)

Session Title	Session Date
1. Effective Partnership Development and Engagement in a Remote Environment	<i>Session slide deck and recording are available on the webinar series website.</i>
2. Community-Engaged Learning	<i>Session slide deck and recording are available on the webinar series website.</i>
3. Field Work Films: Notes on Recording for Remote Teaching	<i>Session slide deck and recording are available on the webinar series website.</i>
4. Field Experiences	Wednesday, July 8th from 1-2 PM EST
5. Teaching Research-Intensive Courses Remotely	Friday, July 10 th from 1-2 PM EST
6. Organization-Partnered Projects	Monday, July 13 th from 1-2 PM EST
7. Academic Internships	Wednesday, July 15 th from 2-3 PM EST
8. Designing Remote Activities to Spark Student Engagement	Tuesday, July 21 st from 1-2 PM EST

Session 4. Field Experiences

Adapting Experiential Learning for Remote Delivery Webinar Series

July 8, 2020



UNIVERSITY OF
TORONTO

Meet your session panelists.

Session Speakers:

- [Professor Nick Eyles](#), Professor, Department of Physical and Environmental Sciences, University of Toronto Scarborough
- [Shane Sookhan](#), PhD Candidate, Online Learning Coordinator, Department of Physical and Environmental Sciences, University of Toronto Scarborough



Planet Earth Online

An online platform for remote experiential learning in Environmental Science courses

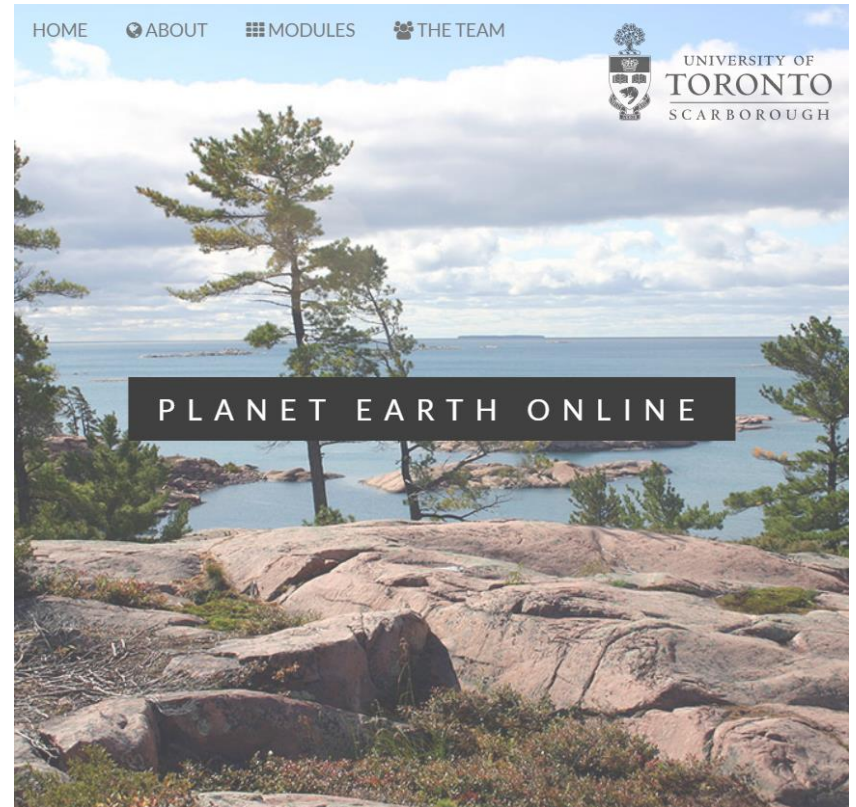
Introduction to Planet Earth (EESA06)

- EESA06 is a first-year introduction to Earth Science
- One of the largest enrollments on campus (<2000 students per year)
- An important gateway course to Environmental Science degrees
- Web option available in Winter, fully online in Summer (asynchronous learning with on campus midterm and exam)
- Large enrollment and online options make hands-on experiential learning difficult to host



Planet Earth Online

- The Planet Earth Online project was started in 2017
- Funded by eCampusOntario and a LEAF Impact Grant
- Provides an experiential “lab” component to several courses on campus
- Consists of 17 online modules
- Modules have been used by over 5000 students, with feedback from over 1500
- Modules based around a series of virtual field trips that use examples from our local geology and environment to teach core course concepts



planetearth.utsc.utoronto.ca

Why Virtual Field Trips?

- Field trips are a core part of the environmental science learning experience:
 - Provide real-world context
 - Expand breadth of course
 - Increase student engagement
 - Proven valuable for recruitment and retention
- Traditional field teaching methods **cannot** accommodate the logistical and accessibility demands created by large introductory classes
- Virtual Field Trips provide an innovative platform for delivering educational material by attempting to simulate the traditional field trip experience online



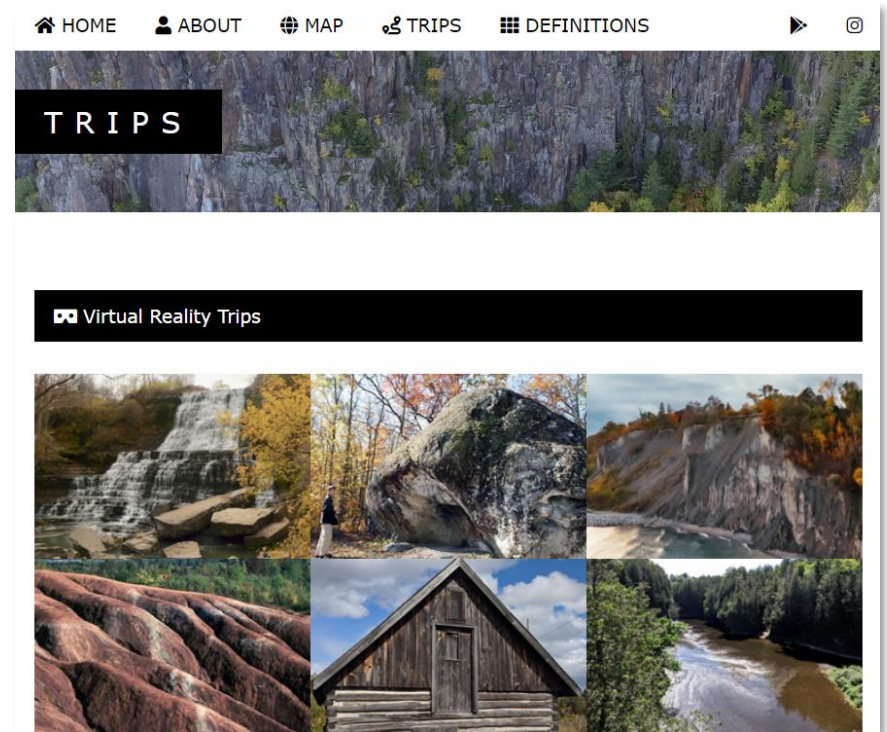
Virtual Field Trips

Creating and using virtual field experiences in large enrollment
Environmental Science courses



Virtual Field Trips (VFTs)

- Planet Earth Online consists of over 35 immersive and media enriched virtual field trips
- Draws on a database of over 500 environmentally significant locations ([Planet Rocks](#))
- Three different types of VFTs developed:
 - Thematic Map Trips
 - Virtual Reality Trips
 - Story Map Trips
- Different VFT types chosen to simulate important aspects of the field trip experience



planetrocks.utsc.utoronto.ca/trips/

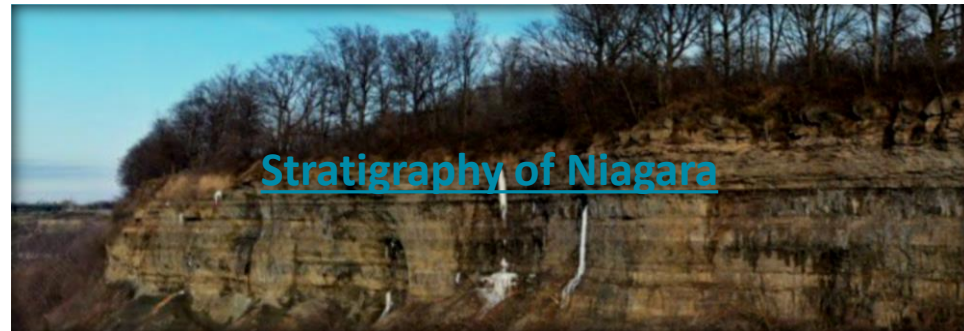
Thematic Map Trips

- Presents a thematically linked collection of environmentally significant locations
- Serves as an introductory overview or field guide styled recap
- Useful for scavenger hunt-like activities
- Made with a customized version of [ArcGIS Story Maps](#) (Shortlist View)



Virtual Reality Trips

- Simulates the “in field” aspect of a field trip
- Students interact with and explore a 360° panoramic environment
- Hotspots used to embed supplementary material to simulate in field explanations
- Can be used on desktop or with VR-headset
- Made using Javascript with a framework called [Panolens.js](#)



Story Map Trips

- Links a series of media enriched locations into one coherent narrative
- Emulates the storytelling aspect of being on a field trip
- Embedded activities used to tie course concepts into experiential environment
- Made with a customized version of [ArcGIS Story Maps](#) (Cascade view)



Embedded Activities

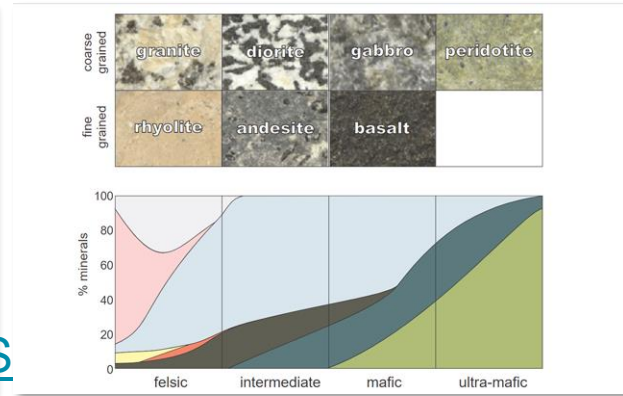
1785
The Present is the Key to the Past

The 'father of geology,' James Hutton published his 'Theory of the Earth' which revolutionized views of the nature of the geologic record. In particular, Hutton understood the enormity of geologic time. He viewed the Earth as having 'no vestige of a beginning, no prospect of an end' because rocks were constantly being transformed and recycled through the rock cycle. Hutton's ideas were built upon by generations of geologists including Charles Lyell who laid out the philosophy of 'uniformitarianism' in his textbook, 'Principles of Geology'. Uniformitarianism is based around the principle that the same natural laws and processes that operated now have always operated, and thus the present is the key to the past.

TimelineJS

SCARBOROUGH BLUFF

JuxtaposeJS



Pacific Plate, Juan de Fuca Plate, North American Plate, Cocos Plate, Caribbean Plate

CesiumJS

UTSC Rock Walk

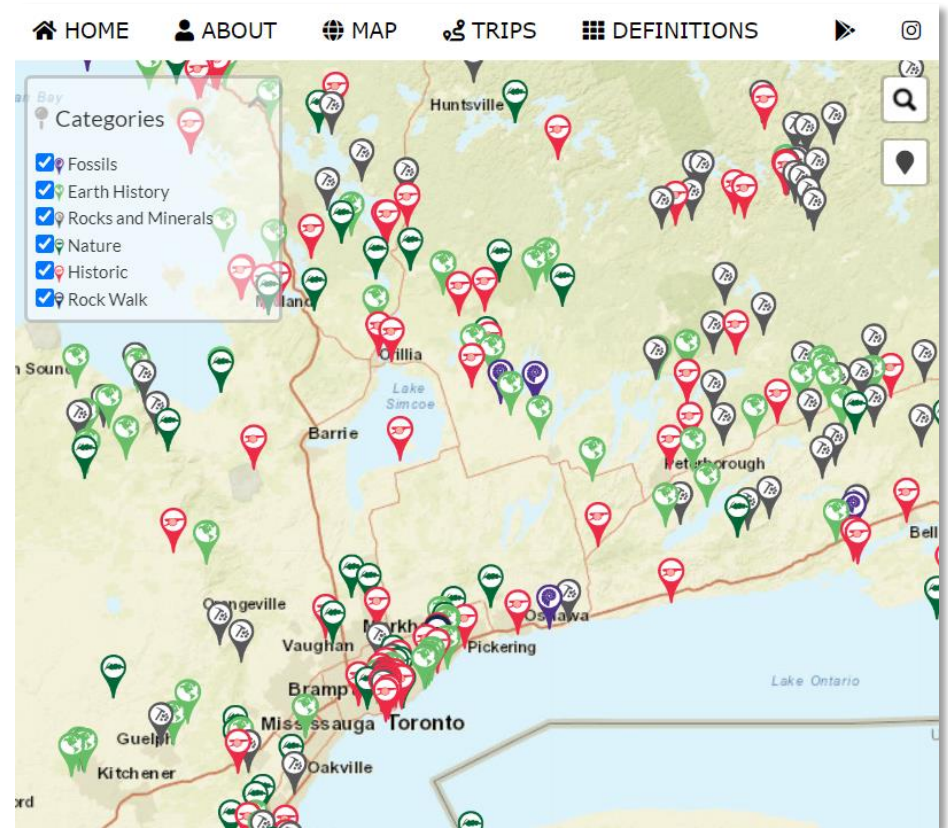
ROCK WALK

Watch later Share

SketchFab

Collecting and Using Media

- For this project we collected:
 - **Photographs**
 - Using previously taken photographs can jumpstart a project
 - Check with your divisional support for copyright inquiries
 - Videos
 - 360° photos
 - Drone Imagery



planetrocks.utsc.utoronto.ca

Collecting and Using Media

- For this project we collected:
 - Photographs
 - **Videos**
 - Image stabilization using a gimbal
 - We've found smartphone quality to be more than adequate
 - Use [Creative Commons Music](#) or separately recorded audio
 - Video editing can be time consuming
 - 360° photos
 - Drone Imagery



Collecting and Using Media

- For this project we collected:
 - Photographs
 - Videos
 - **360° photos**
 - Tripod use is recommended
 - Our camera had limited image quality, so good lighting was needed
 - Drone Imagery



[Ricoh Theta V](#)

Collecting and Using Media

- For this project we collected:
 - Photographs
 - Videos
 - 360° photos
 - **Drone Imagery**
 - Drone pilot license and registration needed for drones 250 g and heavier
 - Can be used to collect photos, videos and 360° photos
 - Restricted access to some locations



Course Design For Virtual Field Trips

Experiences integrating virtual field trips into a large enrollment Environmental Science course

Quercus Integration in EESA06

- Virtual Field Trips packaged into modules using Adobe Captivate and exported as SCORM files
- We have tried two ways of serving SCORM files to students
 - SCORM files imported into Quercus as assignments
 - SCORM files hosted on university server and embedded into Quercus as iframes
- The second option has worked better for us

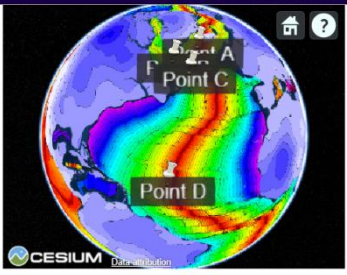
The screenshot shows a Quercus course page for EESA06H06. The breadcrumb trail is: EESA06H... > Assignment... > Planet Earth Online- Module 1: Plate Tectonic Paradigm. The page title is "Planet Earth Online- Module 1: Plate Tectonic Paradigm". The left sidebar contains navigation links: 2020 Winter, Home, Syllabus, Announcements, Modules, Discussions, Grades, Library Resources, WebOption, SCORM, Assignments (with an external link icon), People (with an external link icon), Pages (with an external link icon), and Files (with an external link icon). The main content area contains a message: "Please remember to take a screenshot of your final results page for your own records. Complete a short anonymous survey about this module by clicking [here](#) .". Below this is a note: "This tool needs to be loaded in a new browser window". At the bottom, there is a button that says "Load Planet Earth Online- Module 1: Plate Tectonic Paradigm in a new window".

Assessment

- Each module ends with a 20-question quiz made up of multiple-choice and true/false questions
- Students are expected to manipulate activities and apply learned concepts to answer questions
- Quiz grades are automatically entered to Quercus



Planet Earth Online: Divergent Boundaries



The Age of the Ocean Floor

Ocean floor basalt is pushed away from the mid ocean ridge as it ages. Some mid ocean ridges produce oceanic crust very quickly (fast-spreading ridges) while others produce new oceanic crust more slowly (slow-spreading ridges). We can use the rates of spreading to reconstruct when various plate tectonic events, such as the opening of a new ocean basin, occurred. Oceanic crust becomes heavier and denser at it ages, and eventually begins to sink into the mantle and is destroyed in a process called subduction.

Explore the age of the Earth's oceanic and continental lithosphere. The isochrons (lines of equal age) on continental crust on this globe are labelled in giga-annum (Ga) or billions of years while oceanic crust is labelled in mega-annum (Ma) or millions of years. Click on the '?' for navigation instructions and the home button to return to the original view.

Embryonic Rift Basins
Juvenile Ocean Basins

Thingvellir Ocean Basins Hydrotherma... The Age of th...

Timeline JS

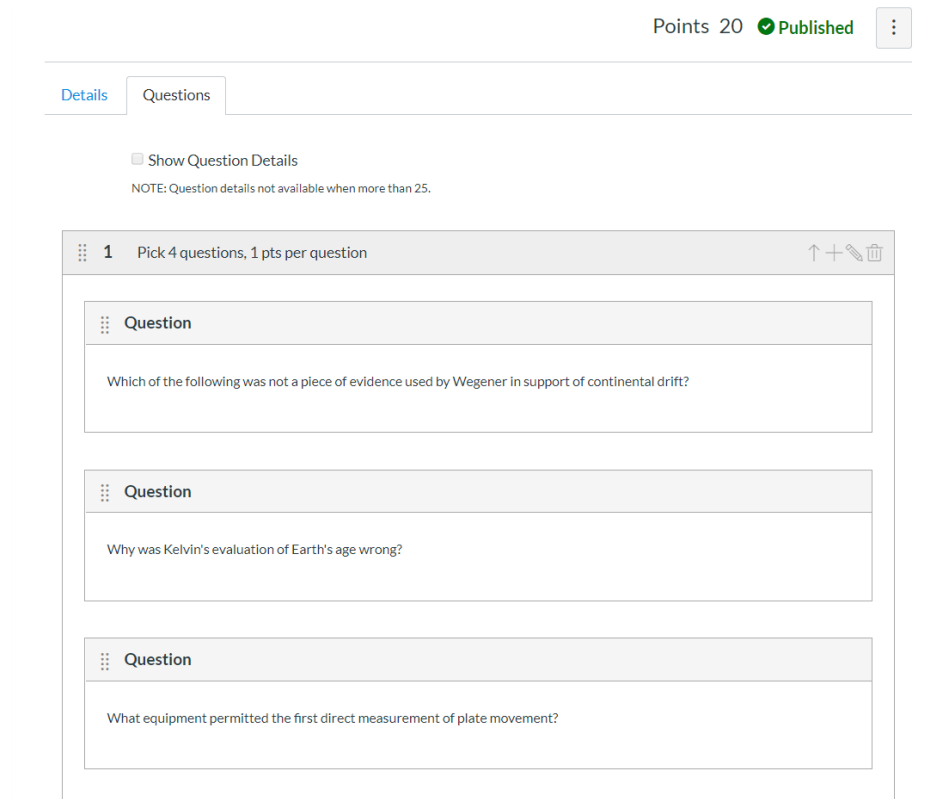
Examine the interactive globe. The oldest oceanic crust in the Atlantic Ocean records the break up of the Supercontinent Pangea. When did Pangea Break up?

A) 120-150 Ma
 B) 180-210 Ma
 C) 90-110 Ma

Question 4 of 20 Submit

Assessment

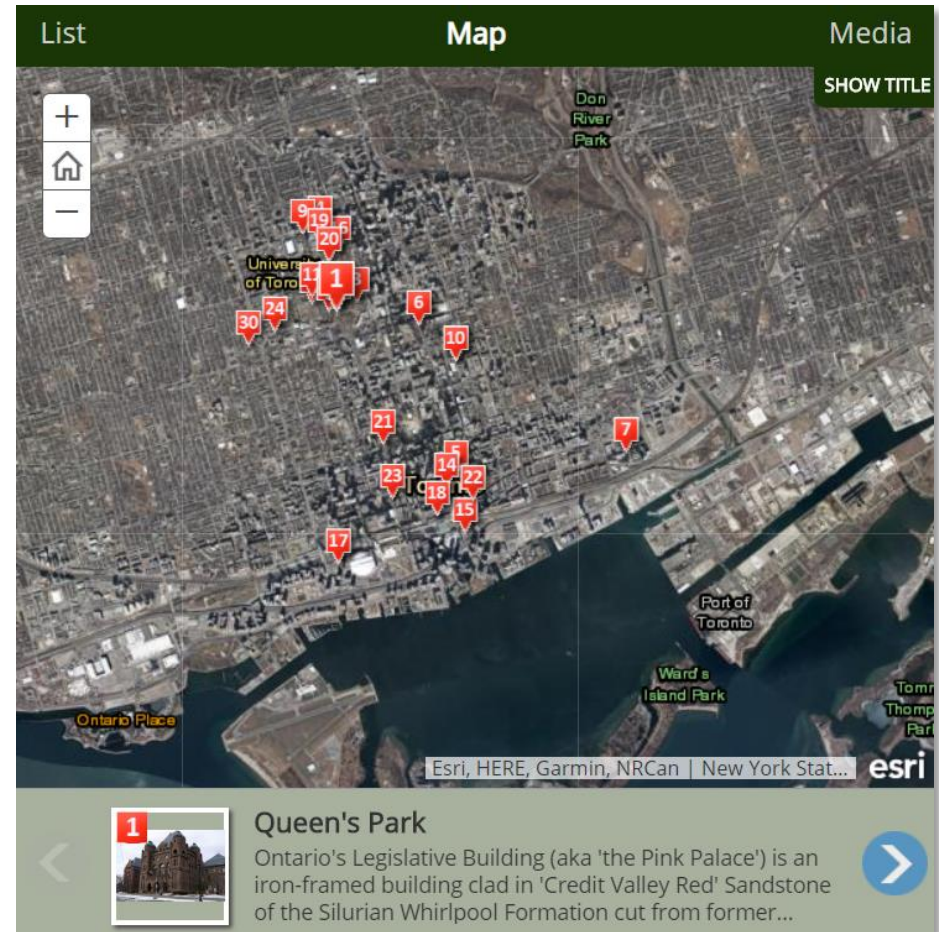
- Module quizzes are split into 4-5 major topics with a question bank of 10-50 questions for each topic
- 4-5 questions are randomly selected from each question bank for each student's quiz
 - Ensures that all major topics are still covered in a randomized quiz
 - Makes it harder for students to cheat....
- This setup can be accomplished in Quercus



The screenshot displays a Quercus assessment interface. At the top right, it shows 'Points 20' and a green checkmark next to the word 'Published'. Below this, there are two tabs: 'Details' and 'Questions', with 'Questions' being the active tab. A checkbox labeled 'Show Question Details' is present, with a note below it stating 'NOTE: Question details not available when more than 25.' The main content area shows a question bank with three questions. Each question is in a separate box with a 'Question' header and a list icon on the left. The questions are: 1. 'Which of the following was not a piece of evidence used by Wegener in support of continental drift?' 2. 'Why was Kelvin's evaluation of Earth's age wrong?' 3. 'What equipment permitted the first direct measurement of plate movement?'

Tips for Delivering Online Labs

- Keep it interactive!
 - Effective experiential learning environments require manipulatable material where students learn while “doing”
- Tends to work best when material is self-contained
 - The asynchronous nature of online learning means students may not have watched/read expected material before attempting lab
- Use local examples where possible
 - Provides real-world context to course concepts
 - Bridges disconnect between online learners and their campus
 - Good way to familiarize foreign students with our local environment



Tips for Delivering Online Labs

- Accessible/Responsive design
 - Students may be using modules on a variety of devices (different screen sizes and internet connection speeds)
 - Alternate screen-readable versions of interactive material
- Write and update a FAQ document
 - Common errors tend to occur (i.e., Browser extensions may cause some material to not show)

EESA06 FAQ:

What do I do if I have a technical issue with the module and the deadline is in a few hours? *Increased technical issues prior to the deadline may be due to traffic on the system. Technical issues on the day of the module are very difficult to deal with prior to module deadline. In order for a technical issue to be resolved/addressed you need to contact the TA 24 hours prior to the module deadline. So always START EARLY!*

I have completed the module but my mark is showing up as zero on Quercus. *Marks may take up to a few days to update automatically, the mark does not have to be updated prior to the deadline for it to count, please be patient and if after a few days the mark is still not updated send the appropriate screenshot to the TA.*

The TA requested me to send a screenshot to have my mark amended but I'm not sure what to do. *All students should take a screenshot of the final grade page shown at the end of the module. The screenshot needs to include the name of the module, mark and bottom banner with your name for it to be accepted.*

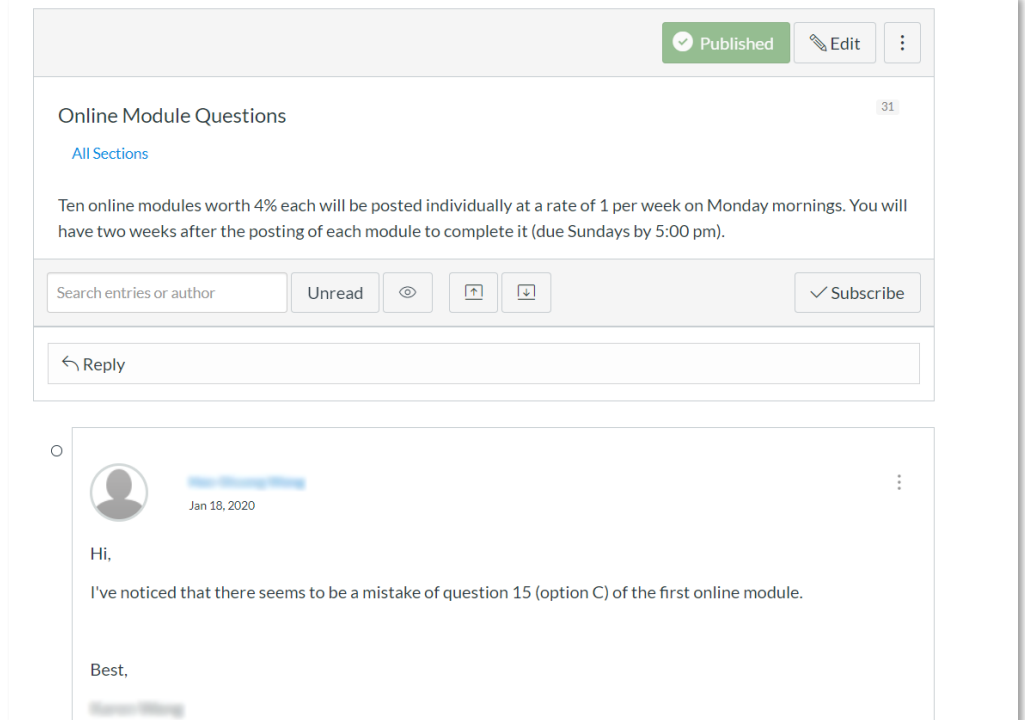
When is the module deadline? *The individual module deadlines are listed in the syllabus. All modules are due by 9 pm on the listed deadline dates.*

I am having technical issues, the module deadline is soon. *Increased technical issues prior to the deadline may be due to traffic on the system. Technical issues on the day of the module are very difficult to deal with prior to module deadline. In order for a technical issue to be resolved/addressed you need to contact the TA 24 hours prior to the module deadline.*

The deadline is soon and I have emailed the TAs but have not heard back from them. What can I do? *There is no guarantee that the TA will respond to you prior to the module deadline if you have issues less than 24 hours before the deadline. While we do our best to answer emails ASAP we do have other duties (ie sleeping, eating, etc) so we are unable to answer emails that we receive at late/early hours. This highlights the need for students to start the modules well before the deadline so we can answer any questions and resolve any issues well before the deadline.*

Tips for Delivering Online Labs

- Have a contingency plan for technical issues
 - Students will find a way to break anything...
 - Set out clear contingency plans from the get go
- Use Quercus Discussion Boards
 - We separate discussion into Content Related Questions and Technical Support
 - Creates class community where common issues can be dealt with
- Weekly office hours can be held using Meeting software
 - Adds synchronous element to Labs if TA hours are available



The screenshot shows a Quercus Discussion Board interface. At the top right, there are buttons for 'Published' (with a checkmark), 'Edit', and a three-dot menu. The main title is 'Online Module Questions' with a '31' in the top right corner. Below the title is a link for 'All Sections'. The main text of the post reads: 'Ten online modules worth 4% each will be posted individually at a rate of 1 per week on Monday mornings. You will have two weeks after the posting of each module to complete it (due Sundays by 5:00 pm)'. Below the text is a search bar with the placeholder 'Search entries or author', an 'Unread' button, a visibility icon, and two arrow icons. To the right of these is a 'Subscribe' button with a checkmark. Below the search bar is a 'Reply' button with a left-pointing arrow. The bottom section shows a user profile with a circular avatar, the name 'User Group Name', and the date 'Jan 18, 2020'. The user's message reads: 'Hi, I've noticed that there seems to be a mistake of question 15 (option C) of the first online module. Best,'.

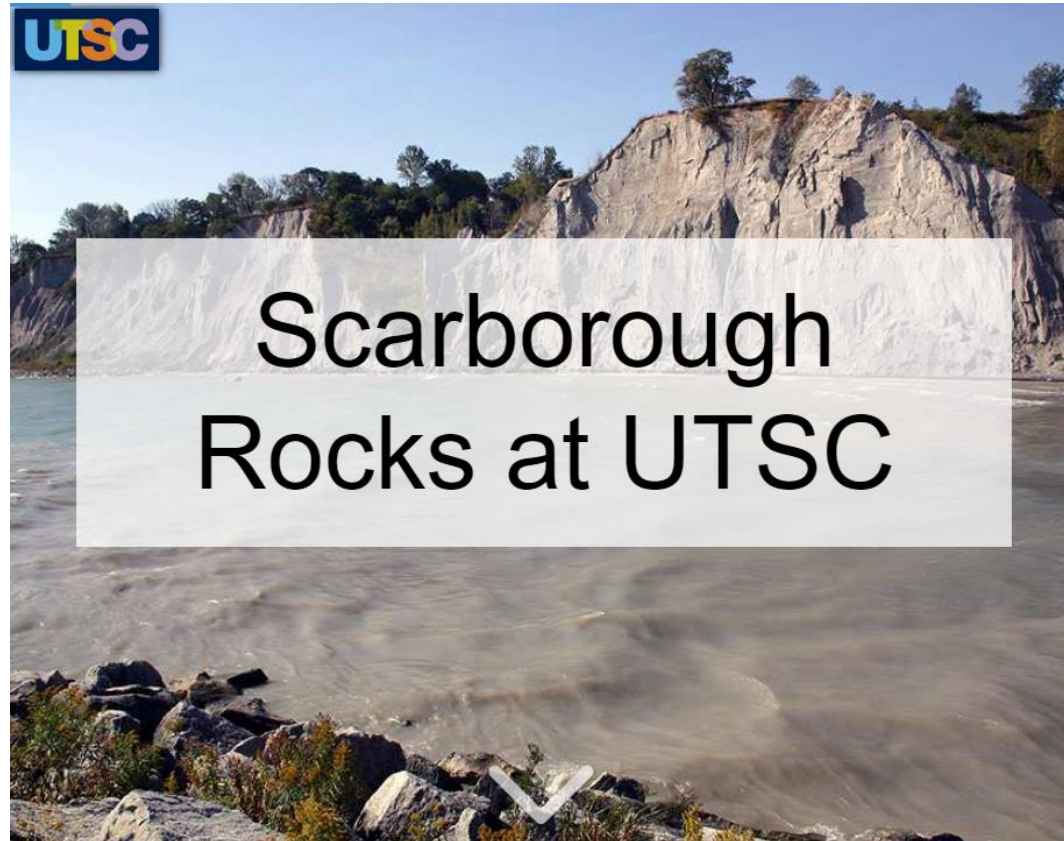
Going Forward

The future of Planet Earth Online



Outside of the Classroom

- Virtual Field Trips can be effective outreach and promotional tools
 - Introduce students to their local environment
 - Expose potential students to the breadth of programs offered on campus



Expanding Outwards!



Contact Information and Additional Experiential Learning Resources



Let's continue the discussion. Please feel free to contact us using the following information:

Session Speakers:

- Professor Nick Eyles: eyles@utsc.utoronto.ca
- Shane Sookhan: shane.sookhan@mail.utoronto.ca



Thank you!

Here are some additional resources:

- **Remote Experiential Learning Resources** – For additional resources available to faculty and staff as they design, implement and administer remote experiential learning opportunities, please view the following SharePoint site, available to all UofT faculty and staff - <https://utoronto.sharepoint.com/sites/dvpp-aelr>.
- **Remote Experiential Learning Webinar Series** – To register for additional webinar sessions in this series, please view the following website - <https://utoronto.sharepoint.com/sites/dvpp-aelr/SitePages/Adapting-EL-for-Remote-Delivery---PD-Series.aspx>.
- **Experiential Learning at UofT** – For more information about experiential learning at the University of Toronto, please view the following website - <https://experientiallearning.utoronto.ca/>.
- **All Other Questions** – For all other questions, please email the Office of the Vice-Provost, Innovations in Undergraduate Education at vp.iue@utoronto.ca. We look forward to hearing from you!