Welcome to CT Rocks! Ideally, these Virtual Field Investigations (VFI’s) for grades 7-12 serve as a companion to field trips to actual Connecticut sites of geologic interest. Realistically, and in response to increasing challenges many teachers face in bringing their students into the field, the VFI’s were designed as immersive, stand-alone experiences in which students actively participate in field geology explorations from their classroom or home. This Teacher’s Guide is meant to help you get the most out of this set of resources.

Background
The VFI’s are divided into three main sections, each corresponding to a different period of geologic history. Period #3 (approx. 30,000 to 15,000 years ago) was the first section to be completed. Each section centers on a geologic process or set of related processes and includes a few geologic puzzles or mysteries that the students must figure out in order to answer the very basic question: “What happened in the past that caused the geologic features you can observe today?” Within each section you’ll visit three or four field sites that contain unique clues and tell different parts of the story; students should visit every site if possible. In many cases, the “answers” will be readily available from close and careful observation of the videos, but at times students may need to do some outside research in order to fully understand and explain what they are seeing.

While some educators will use these VFI’s as introductions to particular units, others may use them as culminating exercises – where this fits in your curriculum is entirely up to you!

Advance Preparation
We highly recommend that you go through the entire set of videos and resources and familiarize yourself with the format and content before taking your students through it.

This is a computer-based application, and is designed to be accessed from the internet. If possible, students should work directly on computers, on their own or in pairs. If you do not have access to multiple computers, you can project the videos for the whole class. If you do not have internet access, or access is painfully slow, please contact us at the Yale Peabody Museum and we can arrange to send you a copy that can run right from a computer and does not require internet access. Please note that in either case (internet-based or not), Quicktime (for videos) and Acrobat Reader (for PDF documents) are required.

Most of the videos have an audio component that includes critical content. If many students are working on this in close proximity, headphones or ear buds may be useful, as well as signal splitters if two
students are sharing a computer. If for some reason audio is impossible, or you have students who are hearing-impaired, there is a set of caption transcriptions (pdf files) available for every section, located near the bottom right of the screen.

The VFI’s are designed to be self-explanatory and self-guided, so hopefully once you get your students to the site and give a few basic ground rules, they will take care of the rest! They will need passwords from you to access certain sections (see below), but otherwise the videos and their own curiosity will direct them to the sections they need.

If you think the glossary will be useful, please point your students toward that file located on the “Field Investigations” main page.

The other important piece to keep in mind is that, as with real field geology, the students are provided with a set of tools and resources, and not all of them will always be useful or required to solve the mystery! Part of their job is sorting out which tools and information are apropos to the questions at hand. The “Maps” button is a good example, where a number of the maps may be cool-looking but unhelpful. Please make sure students understand this idea – that in the field, geologists gather lots of information but only some of it will inform their interpretation of the geologic history of the site, and they may literally bring a number of tools but only end up using a few of them to collect useful data.

At Each Field Site
Have students download and open the Word doc version of the journal for each field site so they can fill it in on-screen, or print the pdf doc version and make copies for each student or pair of students to fill it in by hand. The journals should guide their exploration, but try to make sure they don’t limit curiosity. All of the information students need about each field site can be found within that site section, and any outside internet searching about the field sites is unnecessary and should be discouraged. The only outside research that may be warranted has to do with understanding the mechanism(s) behind certain geologic processes or outcomes.

In each field site, the GPS and Maps sections are self-explanatory.

The Compass Rotation section is a 360-degree view of the site from one specific point at that site. That point is labeled on one of the maps in the Maps section, either the topo map or the park map. Once it fully loads, students can grab and drag the slider beneath the video.

The Location Video section is a montage of various clips from around the site with no spoken words. It is worth watching to get a better sense of what the whole site looks like, and in some cases there are some very useful images to keep in mind.

The Rocks section is the most extensive section within each field site. In this section, students have the chance to study the properties of various rocks/boulders at each site, and in some cases larger features as well. This section includes a description, a Zoom Tool, an acid test, and a link to a Rock Chart where they can compare it to a set of reference images of Connecticut rocks.
Each field site section includes a “Wrap-up” video. This video provides answers to the Observational Questions at each site, but NOT the Questions for Thought. It specifically does not give away the process or set of processes that led to the features we observe today. These sections require a password so that the teacher can determine exactly when to allow this access. If you have been through the Peabody Fellows in GeoScience program, you will already have been provided with the username and set of passwords for the Period #3 VFI. If not, please contact us at the Yale Peabody Museum using a school or institutional e-mail address and we will provide the username and passwords.

**Final Wrap-up**
After visiting the field sites and answering as many questions as possible, including the Questions for Thought, students may return to the main page of the Period you are working on in order to access the “Period Wrap-up” video. Again, this is password-protected so that the teacher can make sure the students have put a sufficient amount of effort into figuring things out themselves before viewing the video. This video reveals geologists’ interpretations of the geologic history of each site and the processes that led to the observed features. It includes video, photos, animations, diagrams, and other information to back up the interpretation and hopefully explain it in as clear detail as possible.

**Other sections of the CT Rocks! site**
The “Planning Ahead” section contains information about planning and carrying out an actual field trip with your students.

The “Activities” section provides an entire Connecticut Geology curriculum guide and its supporting documents, designed in 2011 to support CT State Science Standard 7.3.

The “Learn More” section contains web links and other resources to support geosciences education for teachers and students.

The “About Us” section gives more background on the geologists featured in the VFI's and lists the credits and sponsors of the CT Rocks! project.

This Virtual Field Investigation project is made possible through a generous contribution from the National Science Foundation, through a grant from the Geosciences Directorate (GEO 1034969) to Principal Investigators Jay J. Ague, David M. Heiser, and Jane Pickering at the Yale Peabody Museum of Natural History.