

OBJECTIVES

Students will be able to...

- explain the Exploration theme in depth.
- create, share, collaborate on and distribute a map of the Exploration location and/or their community using Google Maps.
- read a map and identify the parts of a map.
- create informative captions that accompany their waypoint photographs.
- work effectively in a small group.

MATERIALS

Detailed Exploration site map

Clipboard for each student or pair of students

Paper, pens and pencils

Digital camera

Research materials and access to the Internet

Sample Explorations

Exploration Reflection handout

TIME REQUIREMENT

You can take from a few days to a month to create an Exploration. It all depends on your goals, the complexity of your theme and how thoroughly you want to explore your topic. You can modify each step and cover it in a single session or in a full week's worth of study and activities.

BACKGROUND

What is an Exploration?

Explorations (www.kqed.org/exploration) are QUEST's nature hikes and walks with a strong science theme created using Google Maps. The hikes might highlight a natural feature in the community (watershed, park or wetlands), a scientific occurrence (fossil bed, earthquake fault line or native species) or perhaps the setting of a particular story (person's life, animal's home or industry's beginnings). This information can be accessed online as a virtual experience or used as a primer for an outdoor adventure.

Exploration topics depend on your theme. You can choose to span many disciplines, from science or social studies to language arts or service learning and everything in between. For formal teachers, the science standards that apply will be based on the Exploration theme you choose.

If you are interested in a similar place-based activity without using technology, please see our EdTrek activity (http://www.kqed.org/quest/downloads/QUEST_EdTrekActivity.pdf)

Who Creates and Goes on Explorations?

Anyone from individuals to groups can create an Exploration, including classrooms or scout troops working as a group or youth groups collaborating with adult community partners. Explorations are suitable for all ages, elementary to adult.

Children, families and adults enjoy going on an Exploration. Explorations are fun for tourists, family outings, children's birthday parties, daycare programs and educational field trips for schools and camps. Anyone can benefit and learn from an Exploration.

What's in an Exploration?

For each Exploration, participants take photographs at interesting stops, or waypoints, along a path or trail. These waypoints are marked on a map for others to follow. Informative captions, as well as activities and questions, may accompany each photograph.

Where Can I Find More Help?

This packet provides general guidelines for creating an Exploration on any science or nature topic. To see examples of Explorations produced by the KQED QUEST team, visit www.kqed.org/quest/exploration. For an overview of Google Maps, visit <http://maps.google.com/help/maps/mymaps/create.html>.



PROCEDURE

Follow these basic steps to create your Exploration.

1. **Pre-assessment**

Find out what students know about the Exploration topic or site. At the end of the unit, you can use these results as a baseline to assess what they have learned.

- a. Have students create a basic map that notes the shape and boundaries of their Exploration site and key geological features.
- b. Ask the students questions about the Exploration topic.

2. **Introduce Explorations**

Introduce students to a sample Exploration so they can learn what an Exploration is, what its core components are and what they will be responsible for creating.

- a. Ask students about a place that is special to them. Have some of them share their thoughts about that place.
- b. Go on a sample Exploration at www.kqed.org/quest/exploration. Use the Exploration Reflection handout to help students focus on the content.
- c. Introduce the core components of an Exploration:
 - Exploration site map
 - Title
 - Introduction and background information
 - Photographs with captions that help tell the particular story of the site
 - Directions that guide the visitor from one waypoint to another (Note: The sample Explorations through QUEST do not guide the visitor from one point to another, but it is a recommended component of your Google Maps Exploration.)

3. **Learn about Maps / Geography**

Show students how to read and draw different types of maps and understand the different parts of a map.

- a. Introduce topographic maps, community maps and maps of the Exploration site.
- b. Review the components of a map, including latitude/longitude, landmarks, key and cardinal directions/compass.
- c. Ask students to create their own maps of the community or Exploration site, complete with components from 3.b.
- d. Practice locating and exploring the Exploration location on Google Maps, including
 - Finding and zooming in on your Exploration location
 - Changing between the Map, Satellite and Terrain views and noting the differences
 - Turning the “Street View” and “Traffic” tabs on and off (if available for your location)

4. **Explore the Site and Topic**

Make sure your chosen Exploration site will work for your topic.

- a. Line up an expert or specialist to help provide students with content knowledge (optional).
- b. Visit the Exploration site alone or with an expert before taking students to make sure it will work for your purposes.
- c. Find and make copies of an appropriate map of the Exploration site for students.
- d. Take students to visit the Exploration site to develop a relationship with the site and take photographs. Repeat this lesson as many times as desired, using different activities at the site. Some ideas include
 - Sketching activity to begin each site visit
 - Locating landmarks and waypoints on the site maps
 - Developing a species list for your site
 - Focusing on and making observations about small plots of land at the site
 - Taking digital pictures for the Exploration map



5. **Review the Site and Topic**

Have students review what they found at the Exploration site and use the inhabitants, themes and areas to focus their story.

- a. Discuss what students saw at the Exploration site.
- b. Help them construct a site map from memory, adding waypoints and geological features.
- c. Review the Exploration topic and discuss why your Exploration will be located at this site.
- d. Collaborate to establish the story or information your Exploration will convey.
- e. Determine the core elements of the Exploration story and waypoints on the Exploration map where these elements could be taught.
- f. Work together to develop the sequence of the Exploration route.

6. **Determine Route and Movement Directions**

Guide students in deciding on the route that Exploration visitors will take and creating directions to get visitors from one Exploration waypoint to the next. Once the Exploration route has been established, groups of students will do the following:

- a. Select the waypoints on the route each group will be responsible for (in other words, one group works on the path from waypoint A to waypoint B, another group works on waypoint B to waypoint C, and so on).
- b. Students then complete directions leading from their first waypoint to their second waypoint.

7. **Conduct Research and Create Photograph Captions**

Help students conduct further research on the Exploration topic and site, decide what information is important to share with visitors and create teaching captions for the waypoint photographs.

- a. In a large group, students finalize what they will teach on the Exploration.
- b. In small groups, students research individual teaching points and focus on the specific information they will include at their waypoints.
- c. Students write informational captions for their waypoint photographs.

8. **Produce the Exploration**

Guide students in putting together the Exploration on Google Maps. Brief instructions for creating a map on Google Maps are included here. For more information and helpful hints, please go to <http://maps.google.com/help/maps/mymaps/create.html>. For older students or groups interested in a more technical Exploration, consider producing an Exploration on Google Earth. Go to <http://earth.google.com/> for more information.

Create the Exploration map and find the site.

- a. Open a Google account. (You do not need to set up a Google Gmail e-mail account; you may use your existing e-mail address. Students can work through the account of the teacher/group leader or create their own. See below for inviting others to collaborate on the Exploration.)
- b. Go to Google Maps and click on "My Maps." Select "Create new map."
- c. Sign in to Google.
- d. Enter the title and brief description of the Exploration (decided as a group).
- e. Keep the map unlisted until it is finished and then it can be made public (optional).
- f. Zoom all the way in to the location of the Exploration site.

Add placemarks at the waypoints and insert photos and informational captions. (NOTE: To add images, photographs must be stored online to be usable on Google Maps (see www.flickr.com or another photo storage site for information on uploading photographs. These directions correlate with photos stored on Flickr.)

- a. Find a waypoint location and select the "Add a placemark" tool (pinpoint icon). Click once to put the placemark on the waypoint.
- b. Fill in the title of the placemark.
- c. Go to your photo on Flickr, click "See all sizes," click "Thumbnail" and copy the HTML code for that size of your image. Go back to your placemark, click "Edit HTML" and paste in the Flickr HTML code. You may also copy the URL of the thumbnail image and enter it in the placemark box after selecting "Rich text."
- d. Type in the caption below the inserted photograph.
- e. Click on the placemark icon to select a new placemark for this waypoint (optional).



- f. Select “OK.” The placemark can be edited by clicking on it again. (Note: When editing, make sure to click “OK” before selecting another waypoint to edit. If you fail to click “OK,” you can lose your work.)

Create directional lines and finish.

- a. Select the line tool to draw a line to the next placemark. Click once to start the line and twice to finish it. Give the line a title. In the description section, tell visitors how to get from one waypoint to the next. Now add the next placemark at the end of the line.
- b. When all of the waypoints and directional lines have been entered, click “Done.” Now you’re ready to test the Exploration! To make changes, simply click “Edit.” Make sure to save any new changes!
- c. View the map by clicking on “View in Google Earth” (optional).

Collaborate, print and go on the Exploration.

- a. To invite others to edit or add to the Exploration, select “Collaborate” and put in the appropriate e-mail addresses and message. This allows students to log into the map with their own e-mail addresses to work on the group map together.
- b. To print the Exploration, click “Print.” (Note: Please be advised that the program will print whatever map is currently on your screen, so check to make sure your waypoints are visible before printing.)

9. Test and Revise

Return to the Exploration site with students and volunteers to test it. Students can use their notes from this testing session to revise the Exploration, if necessary.

10. Share and publish the Exploration

Now that the Google Maps Exploration is complete, students will want to share their work!

- a. By clicking on the “Send” link at the top of the map, students can send an e-mail to their friends and family with a link to the map.
- b. By clicking “Link to this page,” Google Maps displays the URL for the map that can be sent to others via e-mail or text message. The HTML code that is displayed can be pasted into a Web page or blog and the map will appear there!
- c. If you’d like to share the map with the world, don’t forget to make the Exploration public once it’s completed!

11. Post-assessment (optional)

Have students revisit all of their activities since the pre-assessment to show what they have learned about their Exploration topic.

EXPLORATION RESOURCES

NOTE: this Exploration guide is a version of *QUEST*’s EdTrek activity, a form of questing started in Vermont.

QUEST EdTrek Activity http://www.kqed.org/quest/downloads/QUEST_EdTrekActivity.pdf

Video Introduction to Google Maps <http://maps.google.com/help/maps/mymaps/create.html>

Google Earth <http://earth.google.com/>

Sample Explorations www.kqed.org/quest/exploration

Watershed Questing Curriculum <http://www.pbs.org/kqed/oceanadventures/educators/watershed/>

Questing: A Guide to Creating Community Treasure Hunts, by Delia Clark and Steven Glazer (Hanover, NH: University Press of New England, 2004).

Valley Quest Program; Vital Communities in VT <http://www.vitalcommunities.org/ValleyQuest/ValleyQuest.htm>



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Monterey Bay Aquarium
www.mbayaq.org

Monterey Bay Aquarium Research Institute
www.mbari.org

Oakland Zoo
www.oaklandzoo.org

The Tech Museum of Innovation
www.thetech.org

UC Berkeley Natural History Museums
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U.S. Geological Survey
www.usgs.gov

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REFLECTING ON THE EXPLORATION

1. Where does this Exploration begin?

2. What is significant about this place?

3. Describe three things you learned through going on this Exploration.

i.

ii.

iii.

4. Which photograph do you like best? Why?

5. Which photograph do you like least? Why?

6. What is one thing you would share with a friend about this Exploration?

7. Would you like to go on this Exploration? Why or why not?

8. Where does this Exploration end?
