

**GPS Lesson 2**  
**FIELD DATA COLLECTION FOR GPS DATA AND**  
**DIGITAL PHOTO DOCUMENTATION**  
**TEACHER INFORMATION**



**Lesson Summary:** During this lesson students will go on a field trip to collect geospatial data and other useful information to document sites of interest they encounter.

**Objectives:** In this lesson students learn to set up their GPS unit to collect track logs, take field notes, take digital photos, and mark the location of their photos with GPS waypoints.

**Estimated Time:** 1 hour or more

**Correlation to Alaska Standards:**

Geography A-6 Use spatial (geographic) tools and technologies to analyze and develop explanations and solutions to geographic problems.

Technology A Operate technology-based tools.

**BACKGROUND INFORMATION**

In GPS Lesson 1 – Geocaching, students learned to enter and mark waypoints in their GPS and then navigated to those waypoints. In this lesson, students apply these skills to data collection in the field and also learn to take field notes and digital photos describing their waypoints. All of this data may then be used to create AEJEE or Google Earth maps.

In addition to collecting this information, there is also the option of collecting a track log of the journey. A track log is a series of coordinates of points along the way that the GPS can automatically collect if you set it up to do so. This is like a breadcrumb trail, where each breadcrumb is a point that the GPS locates and records the location of. This trail of points shows where you have traveled with your GPS unit. Collection of a track log requires simple setup of the GPS receivers, but once set up, the track log starts recording as soon as the unit gets

a location fix and continues to save information throughout the trip. Once the trip ends, the track log should be saved for future use.

## **MATERIALS**

- GPS units – one for each student group
- Digital Cameras – one for each student group
- Extra batteries
- Clipboards
- Copies of Student Observation Sheet for the lesson

## **INSTRUCTIONAL PROCEDURES**

### **Getting Ready**

- Choose a field trip location or route that is of interest to your students and includes several notable features to document. These features or sites should be at least a few hundred feet away from each other so the GPS points the students collect have good geospatial separation if they are going to use the data to make AEJEE maps. If the sites are too close together the points will clump up in a very small area and the resulting maps will not be as rewarding.
- Decide if this trip lends itself well to collection of a track log. Generally, if the area traveled is short, a track log may not be of much interest, but documenting the route of a longer hike or road trip might be quite rewarding.
- Before starting this lesson, students must have completed the “Introduction to GPS with Geocaching” lesson or equivalent.
- Make sure the GPS units and cameras are ready by:
  - Checking batteries on both GPS Units and Cameras
  - Clearing memory cards (of the cameras)
  - Clearing waypoints and track logs from the GPS units
  - Checking time/date setting on the cameras
  - Making sure the cameras and GPS units are labeled

### **Gear-up**

- Remind students that in GPS 1 they learned how to mark and save waypoints and explain that they will be practicing that skill again in this lesson.
- Ask the students if any of them have used a GPS unit to map a trail or route. Ask one to describe how he or she did it.
- Explain that while they are traveling from point to point the GPS will be collecting a log of their route while they travel and explain what a track log is.
- Before leaving class, pass out copies of the GPS Track Log Setup sheet and work through the process with students prior to going on the field trip.

- Give the students a sense of what their field trip objective is in terms of the photography. Are they looking for physical landscape features? Cultural landscape features? Landmarks? Points of interest?
- Make sure the students pass the worksheet, camera, and GPS unit around in their group so that each has an opportunity to work with the technology and the note taking.

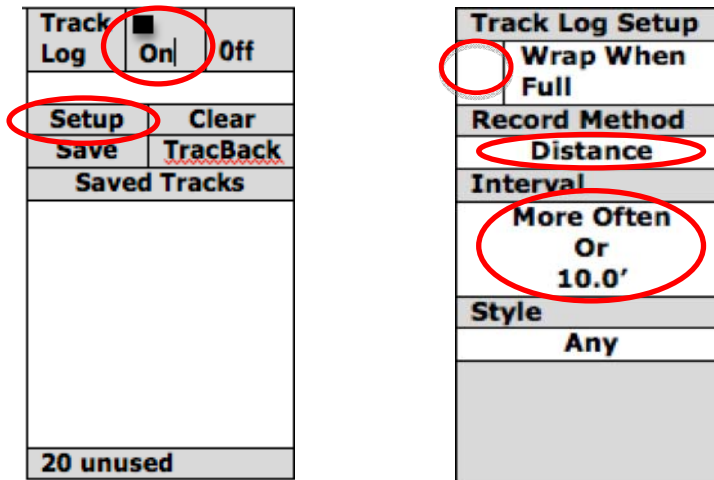


## GPS Lesson 2 TRACK LOG SETUP

1. **Turn on** your GPS by pressing the **Power** button on the right
2. Use the **“Page”** button to find the main menu and select **“Tracks”** and press down the **“Rocker”** to enter.



3. In the **“Tracks”** menu select and enter **“ON”** and then select and enter **“Setup”**.



4. In Track Log Setup
  - **Uncheck “Wrap When Full”**
  - Set the “Record Method” to **“Distance”**
  - Set the “Interval” to either **“More Often”** or **“ 10.0' ”** (depending upon which choice is listed in the window)
5. **Exit** “Track Log Setup” by pressing the **“Page”** button.

Group Name: \_\_\_\_\_ Group GIS Number: \_\_\_\_\_

Group Members \_\_\_\_\_

Date: \_\_\_\_\_ Camera Number: \_\_\_\_\_

### Observation Sheet

Field Data Collection Sheet for GPS Data and Digital Photo Documentation

#### Student expectations:

Your work will be graded based on attitude, neatness, completeness, photo quality, and description quality.

#### Data collection procedure:

Select one group member to do each of the following tasks (members will switch tasks for each site visited): **Recorder**, **GPS Operator**, and **Photographer**.

When we arrive at each field site:

1. The **Group** assigns a one or two word **site name** that will be used to label the site on maps.
2. The **Recorder** writes down the **site name**.
3. The **Group** decides how they want to **describe** the site.
4. The **Recorder** writes the **description** on the Observation Sheet.
5. The **GPS Operator** makes sure that they are getting a good GPS reading (at least 60 ft. **GPS accuracy**).
6. The **GPS Operator** marks a **waypoint** and relays GPS information to the recorder.
7. The **Recorder** writes the **waypoint number** and **GPS accuracy** on the Observation Sheet.
8. The **Photographer** takes one **photo** and the **Recorder** writes the **Photographer's** name on the Observation Sheet.
9. **Group members switch data collection tools and tasks.**

**Photo 1**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_

\_\_\_\_\_

**Photo 2**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_

\_\_\_\_\_

**Photo 3**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_

\_\_\_\_\_

**Photo 4**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_

\_\_\_\_\_

**Photo 5**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_

\_\_\_\_\_

**Photo 6**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_

\_\_\_\_\_



**Photo 7**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_  
\_\_\_\_\_

**Photo 8**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_  
\_\_\_\_\_

**Photo 9**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_  
\_\_\_\_\_

**Photo 10**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_  
\_\_\_\_\_

**Photo 11**

Photographer: \_\_\_\_\_

GPS Operator: \_\_\_\_\_

GPS accuracy: \_\_\_\_\_ Feet      Waypoint: \_\_\_\_\_

Site Name: \_\_\_\_\_

Description: \_\_\_\_\_  
\_\_\_\_\_

If you collected a **Track Log** on this trip – don't forget to save it! **Return** to the "Track Log" setup page and enter "**Save**".

The date will appear in the "**Saved Tracks**" window. You can name this track log by highlighting and selecting the date, and then renaming it using the alphabet keypad. Don't forget to click "**OK**" to save!