LESSON 2.1: INTRODUCTION TO ENGINEERING SCALES & UNITS OF MEASURE

Introduction

How we all see the world is a matter of scale. To measure one must first know what he or she is locating and the accuracy needed for the information gathered. We can make measurements by several means each resulting in degrees of accuracy. To understand a map one must know how big the world is -- relatively speaking. We scale our maps to give us a view of the world we desire to see, whether that be your neighborhood (small scale) or all of Europe (big scale).

In this lesson you will be shown how to make measurements in the field and transfer the information onto a map. You will watch a series of video lessons on how to convert between inches and tenths of feet and how to apply the Engineer's scale in order to measure distances on a map. After working through the lesson you will be required to download the Engineering Scale worksheet and make measurements as instructed. You will also be required to attend lab and use your Engineer's scale to take measurements on a set of construction blueprints and topographic maps.

- Watch the video lessons below.
- Take the Review Quiz 2.1 after watching the videos.

The following videos will help you understand how we apply scales to measurements....Get Your Scales Out :)

Videos

- INTRODUCTION TO USING AN ARCHITECT AND ENGINEERS SCALE
- HOW TO USE AN ENGINEERING SCALE
- FRACTIONS AND DECIMALS
- CONVERTING BASE-10 FRACTIONS
- CONVERTING ANY FRACTION
- CONVERTING INCHES TO CENTIMETERS

Review Quizzes

- Review Quiz 2.1.1
- Review Quiz 2.1.2.

Additional Reading/Video (Not Required)

Videos:

- HOW TO CONVERT METRIC/IMPERIAL SYSTEMS
- UNIT CONVERSION IN THE METRIC SYSTEM

LESSON 2.2: INTRO TO MEASURING TOOLS, TERMS, & HAND SIGNALS

Introduction

It's important to remember the instruments we use to measure must be handled and used with care and respect. A slight bump or kick to a tripod and total station could cost you hours of lost time correcting the measurement errors caused by it's change in position. In addition, knowing what to do and how to communicate in a field environment is crucial to be an effective Geotech. Proper attire, hand signals, and terms should be used at all times so there is no miscommunication between you and your field party.

In this lesson the following videos will introduce you to several measuring devices used in the field, how to verbally and non-verbally communicate measurements, and Geotech map terms used in the office and field. After working through the lessons you will be required to identify measuring devices and their use, explain how to take proper care of field equipment, and apply communication skills for relaying measurements to a second party.

- Watch video lessons below.
- Take the Review Quiz 2.2.1 and Review Quiz 2.2.2 after watching the videos.

The following videos will introduce you to equipment used in the field for taking measurements and the terms we use to effectively communicate with our Geotech partners. Don't take the basics for granted, this is usually your first "real" test when you go work for a firm that specializes in measuring and locating geographic features and whether or not they want to keep you on their team.

Videos:

- HAND MOTIONS
- COMMON HAND SIGNALS
- HAND SIGNALS FOR NUMBERS

Review Quizzes

- Review Quiz 2.2.1
- Review Quiz 2.2.2

This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This solution is copyrighted by the institution that created it. Internal use, by an organization and/or personal use by an individual for non-commercial purposes, is permissible. All other uses require the prior authorization of the copyright owner.

This project is 100% funded, in the amount of $12,665,892 by the U.S. Department of Labor and administered by the University of Hawaii.

The Rural Hawaii project is an equal opportunity employer/program and auxiliary aids are available to individuals with disabilities upon request

Hawaii CC does not discriminate on the basis of age, race, sex, color, national origin, or disability or other protected classes in its programs and activities.

For inquiries or complaints concerning our non-discrimination policies, please contact: Disabilities Counselor, Section 504 Coordinator (808-934-2725, Hawaii CC Bldg. 388-Room 106) or Vice Chancellor for Student Affairs, Title IX Coordinator (808-934-2509, Hawaii CC Bldg. 378).