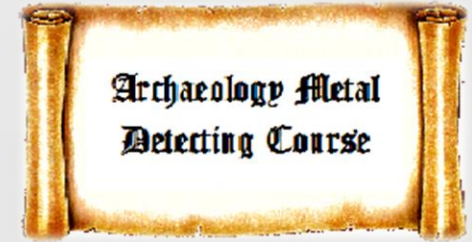


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Archaeology Metal Detecting Course Workbook

Author:

Ben Castricone has a PhD in Anthropology / Archaeology with 20 years of Archeology research and field experience. During these 20 years he has traveled the world extensively in this endeavor. Ben has been Metal Detecting for five years and is a member of the THSSCV – Treasure Hunter Society of Santa Clara Valley metal detecting club in California. [Website](#) [Email](#) *For any archaeology questions contact Ben.*

November 07, 2009

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Ben Castricone

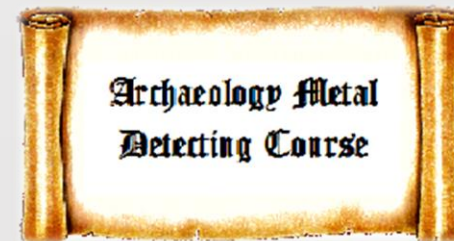
Permission Granted to:

Metal Detecting Hobby Talk

<http://www.mdhtalk.org>



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Archaeology Metal Detecting Course

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Lesson Two

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Archaeology Glossary

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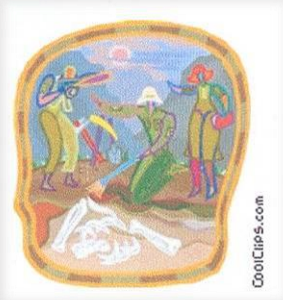
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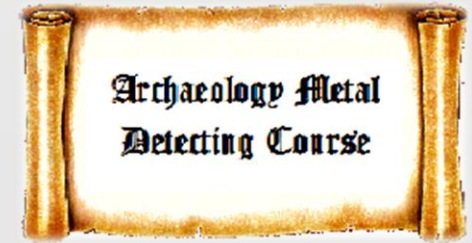
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Lesson 1



Lesson 1 Unit Layout and Excavation

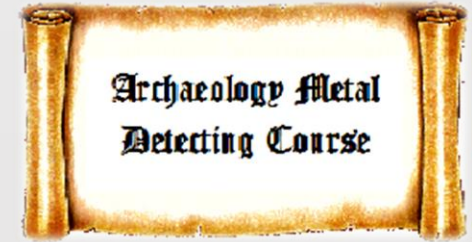
1. **Locate Your Assignment Unit**
2. **Assign Team Duties**
3. **Layout Unit Per Instructions**
4. **Setup Datum on Highest Point in Unit**
5. **Locate Potential Targets with Detector**
6. **Set Out Flags**
7. **Excavate Targets per Correct Procedures (Do not Remove Artifacts Yet)**
8. **Measure Depth of Artifacts & Record**
9. **Draw Location of Artifacts in Unit on Form**
10. **Remove Flags**
11. **Bag and Tag Artifacts**
12. **Fill in Hole**
13. **Complete Final Docs and Report**
14. **Take a Break**



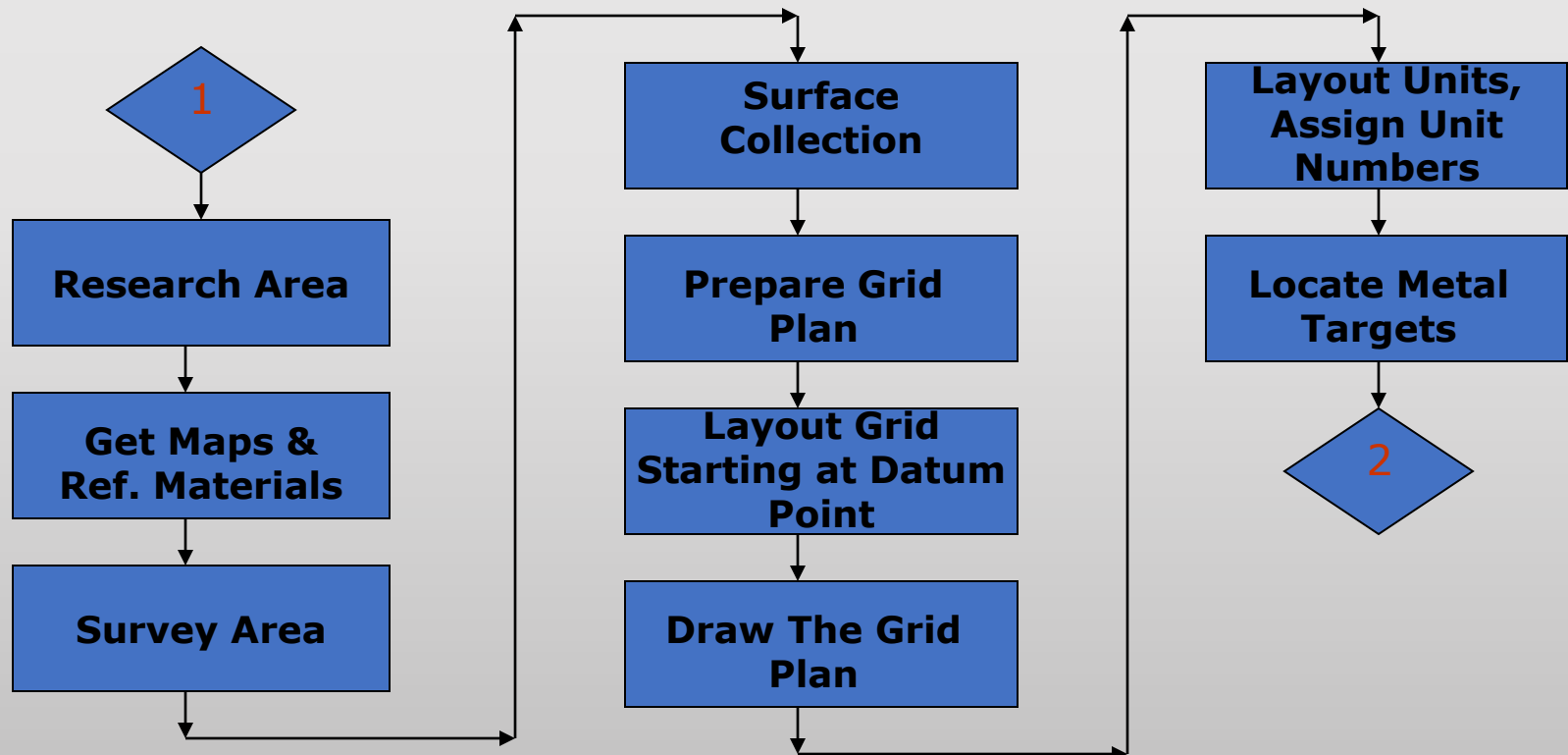


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Lesson 1



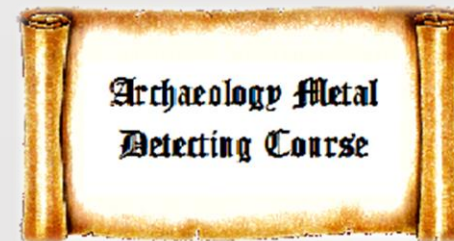
Pictorial Presentation of a Excavation



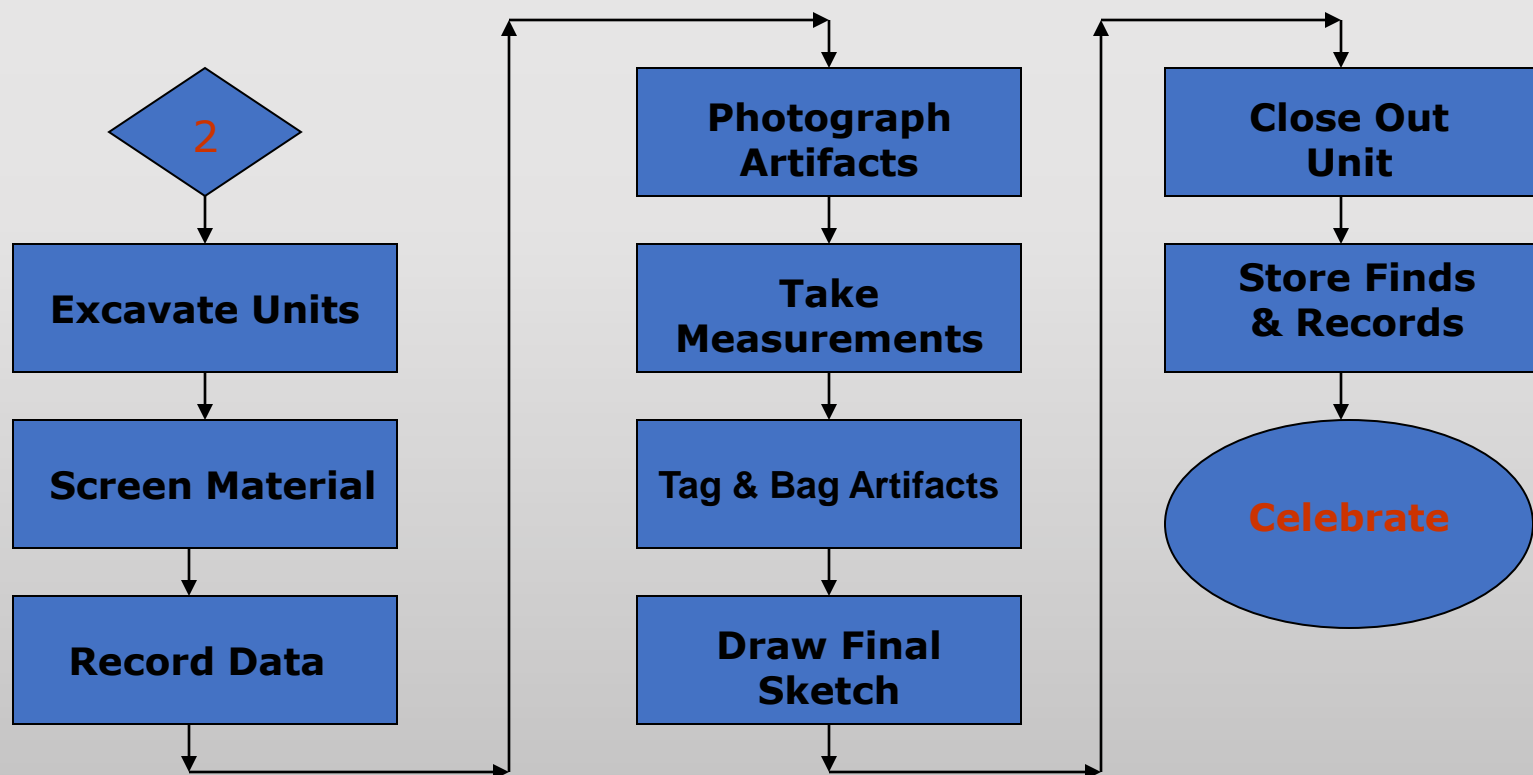


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Lesson 1



Pictorial Presentation of a Excavation



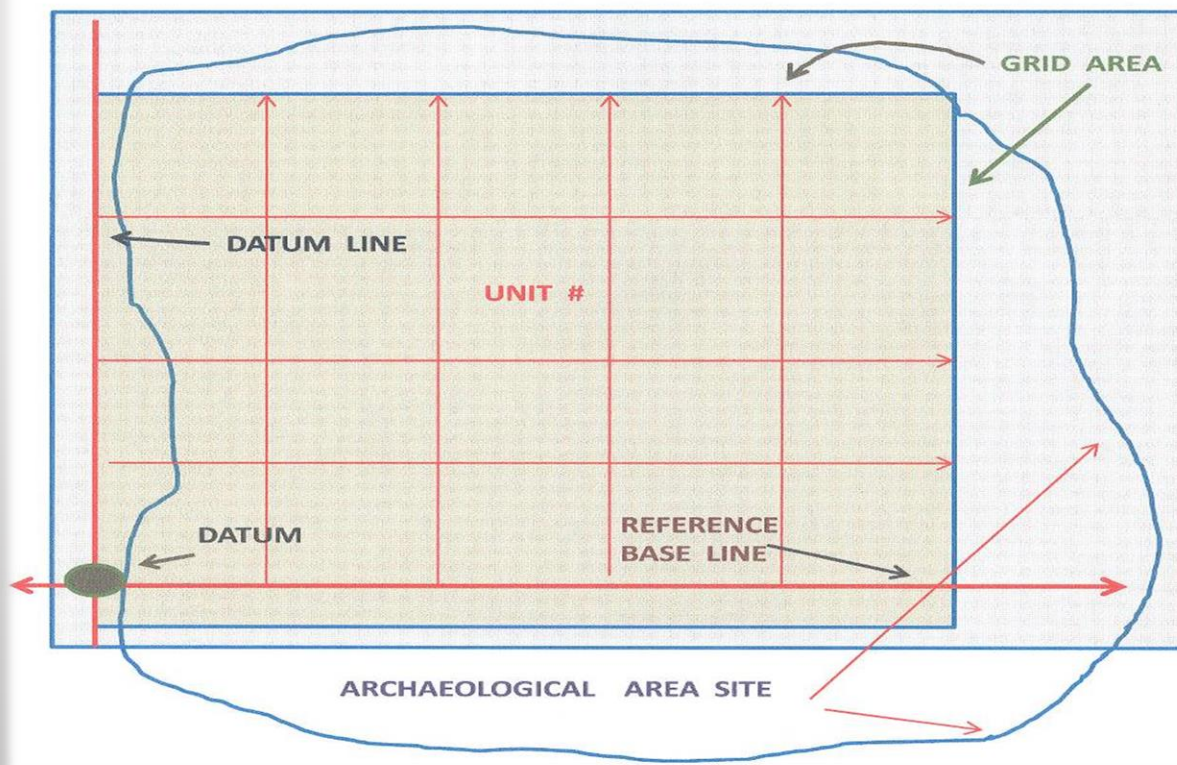


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Lesson 1

Archaeology Metal
Detecting Course

Pictorial Representation of a Site

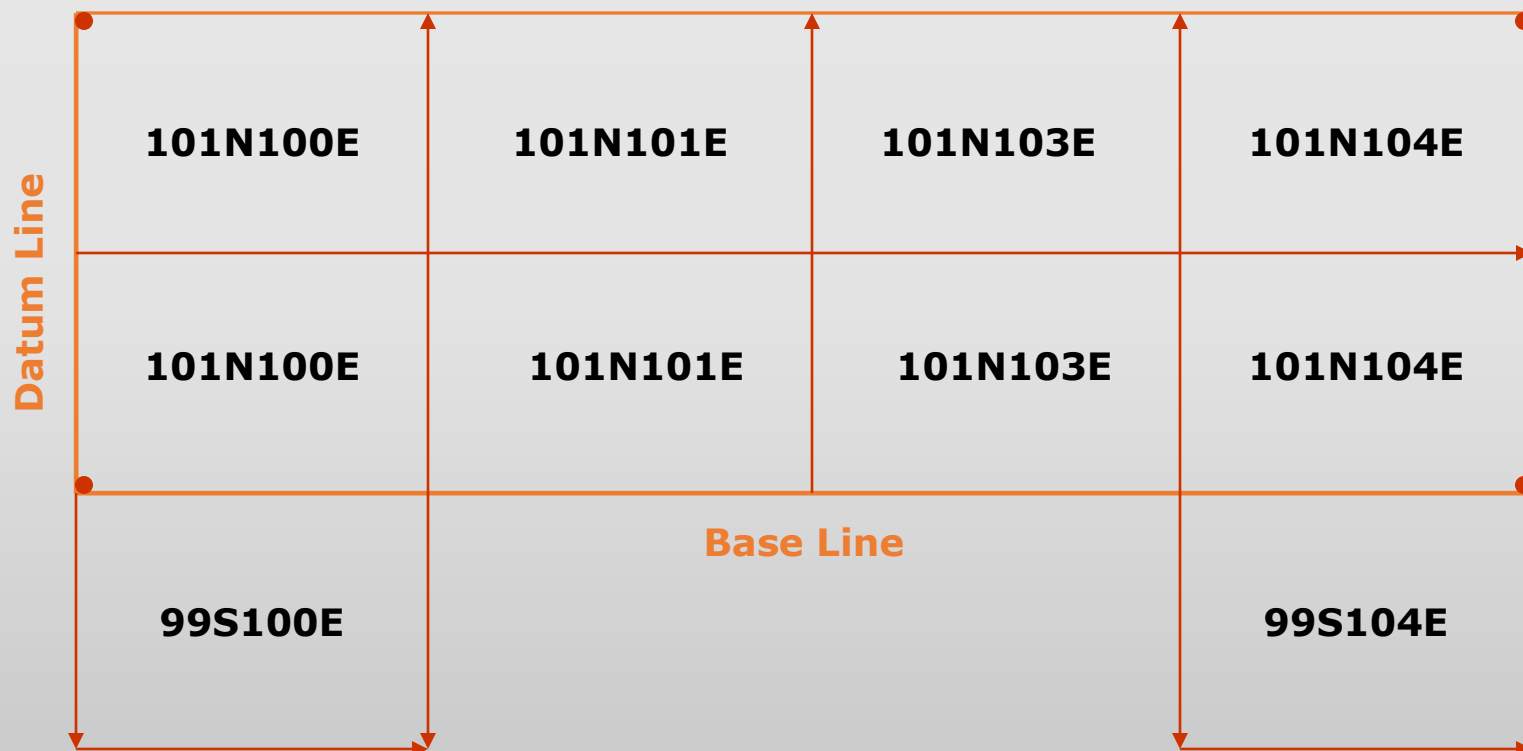
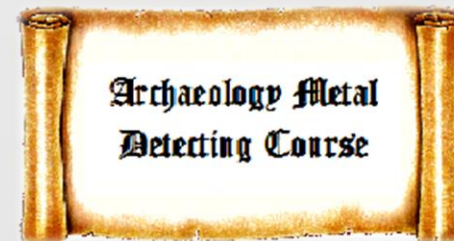




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Lesson 1

Grid





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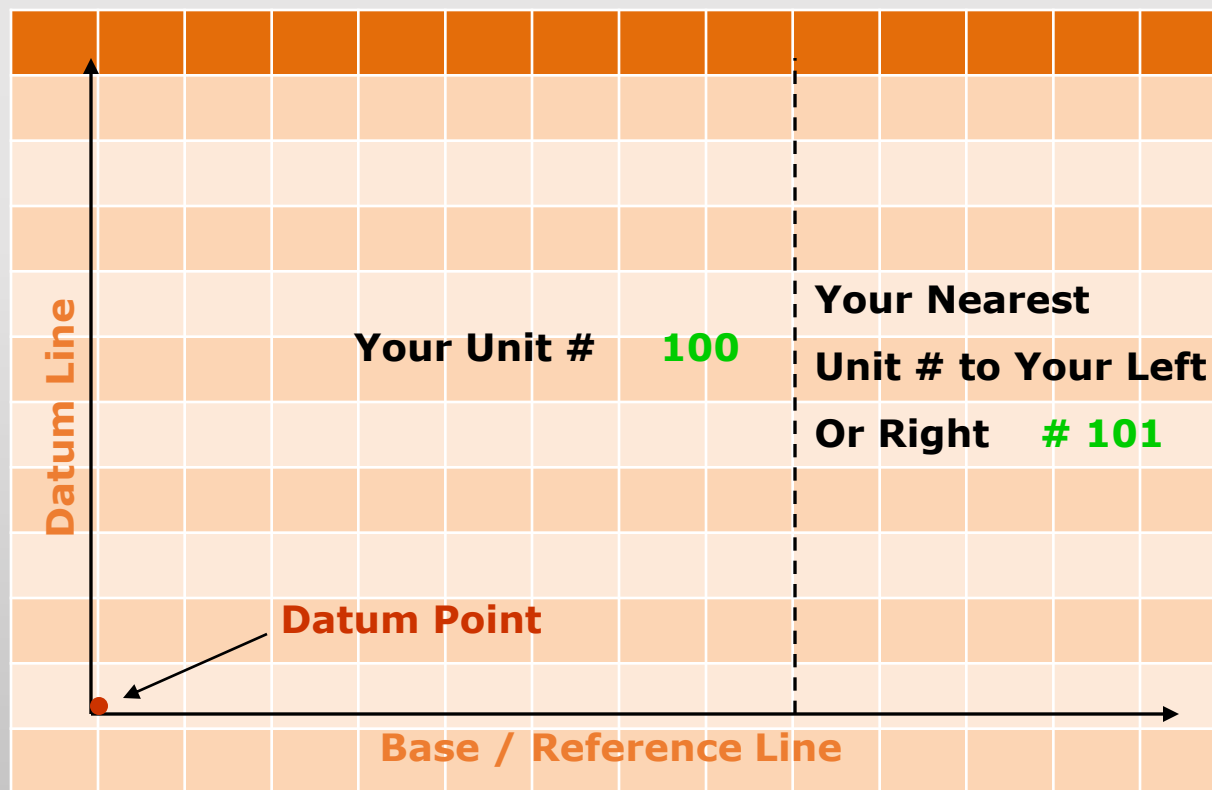
Lesson 1

Archaeology Metal
Detecting Course

Area 50 Unit Relationship Map

Scale V= _____

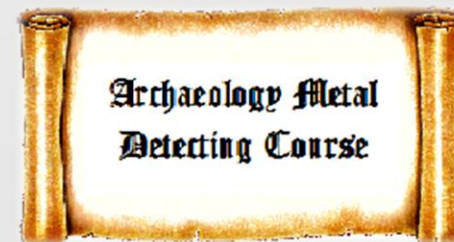
Scale H= _____





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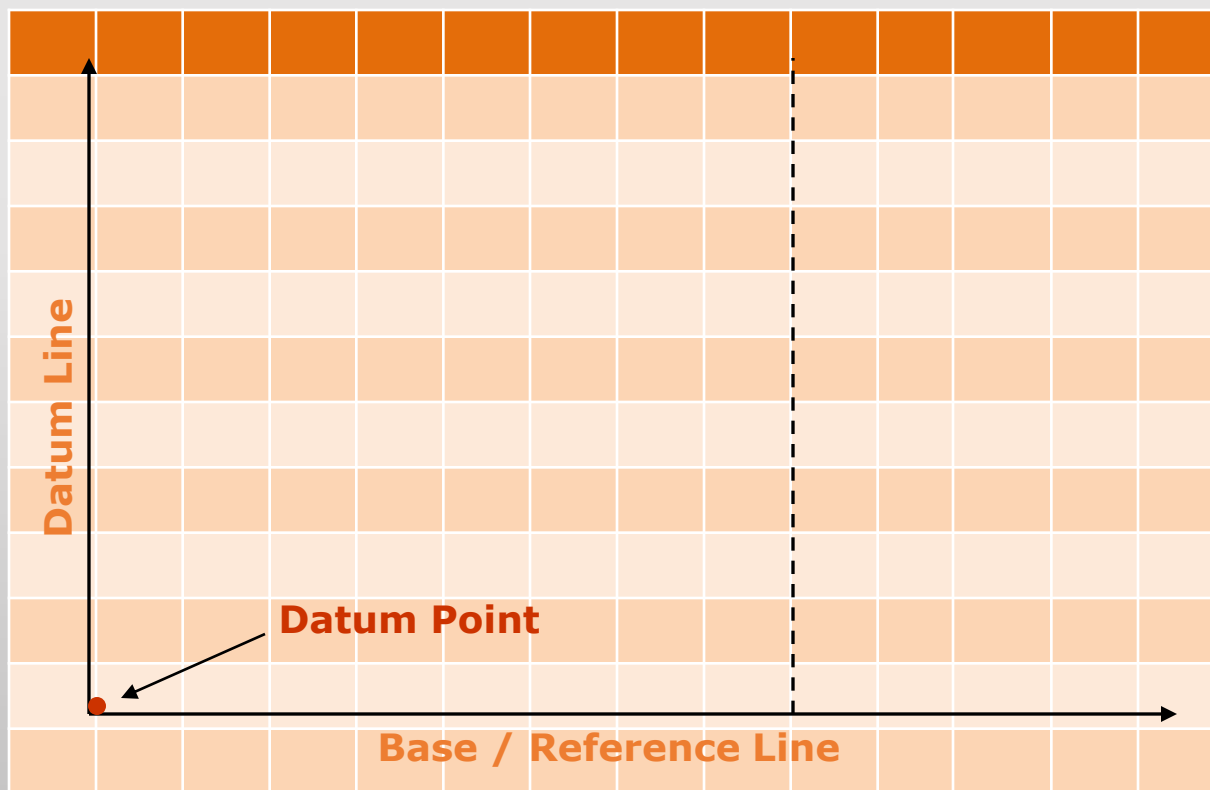
Lesson 1



Area 50 Unit Relationship Map

Scale V= _____

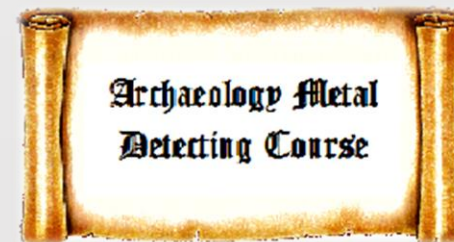
Scale H= _____



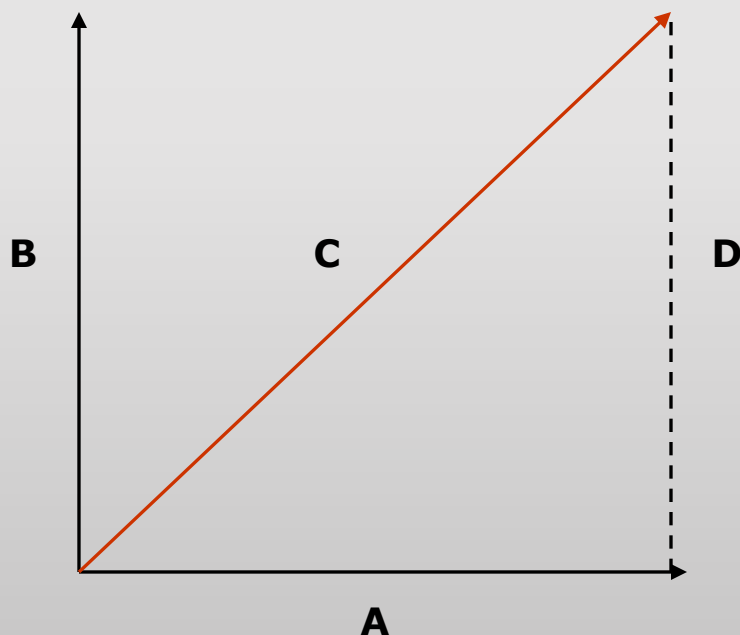


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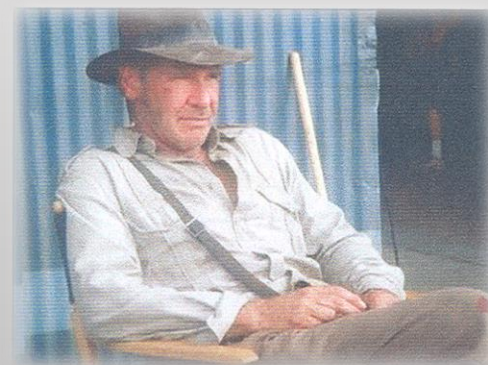


Math Behind the Laying Out a Unit



$$C = \sqrt{A^2 + B^2}$$

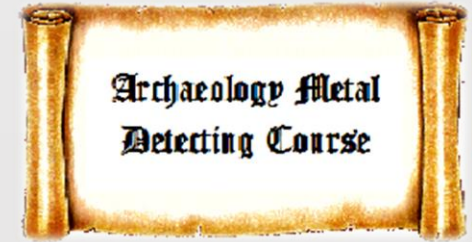
$$D = B$$



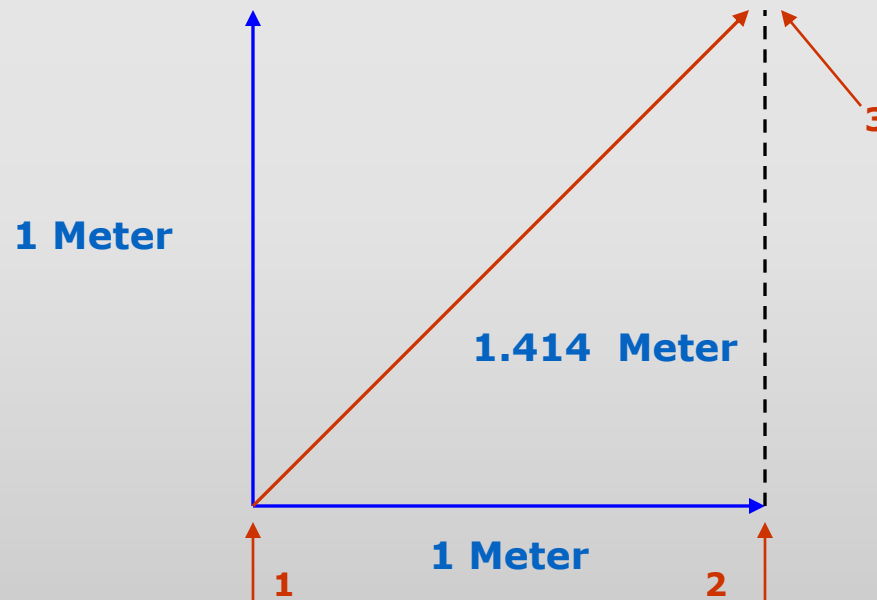


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Lesson 1



Math Behind the Laying Out a Unit



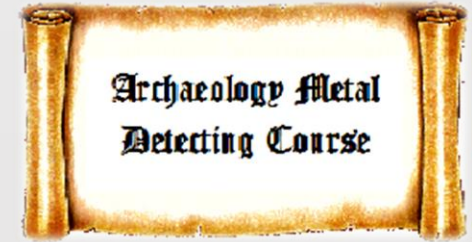
For 2 Meter Grid Squares (**Reference Lines 2 Meter**)

Diagonal Would be $2 \times 1.414 = 2.818$ Meters



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Lesson 1



Metal Detector Use

Sweep the detector 1-2 inches above and across the unit to be excavated. Whenever the detector signals that a metal object lies below the surface, a small flag should be planted at that point.

Use earphones to better detect the signal variations. Earphones also block out sound of high winds and other extraneous noises.

Carefully brush away top covering using standard archaeological procedures (ie: towel & brush). Do not remove object until all soil around the artifact is removed, do not pry object from the ground.

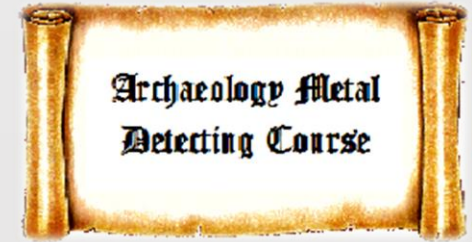
Record depth of metal artifact, location, and brief description of what it is.

Use metal field conservation techniques whenever possible.



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Lesson 1



Metal Artifact Categories

H/C Hardware and Construction (nails, cartridges cases)

H/K Household and Kitchen Items (tin cans, utensils)

OR Ornaments (apparel accessories)

MA Machinery

CO Coinage

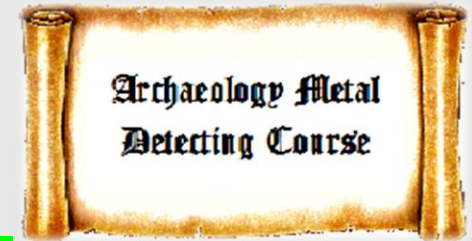
PI Personal Items (toys, jewelry, weapons)

TR Transportation Items (horseshoes, wagon parts)



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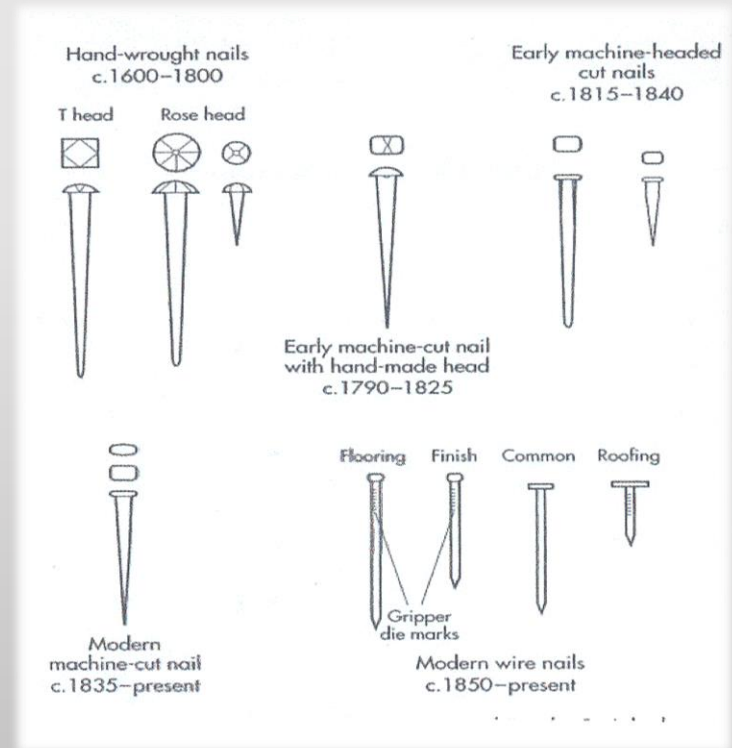
Lesson 1



Nail Classification

Types:

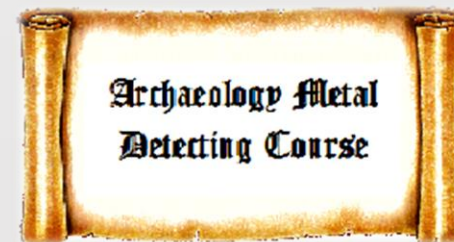
- Machine-Cut (with handmade head)
- Machine Cut
- Hand-Wrought or Hand Forged
(taper on all sides toward the point;
varies in thickness throughout shaft)
- Rose Head
- T-Head
- Modern Wire
- Common
- Finish
- Flooring
- Roofing



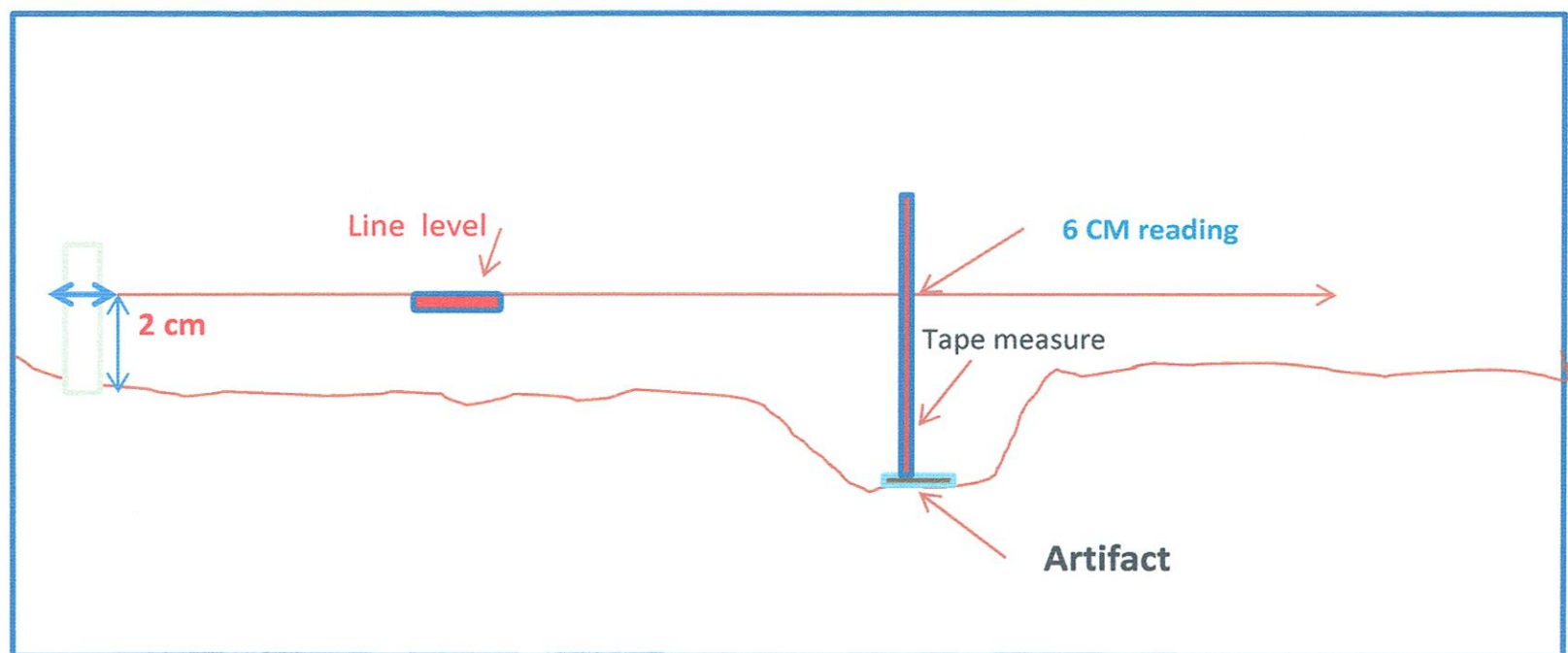


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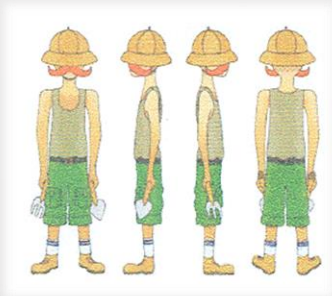
Lesson 1



Determining Artifact Heights

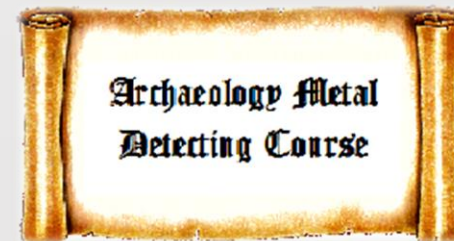


AH = Tape Measure Reading Minus Line Level Heights to Ground **4 CM**

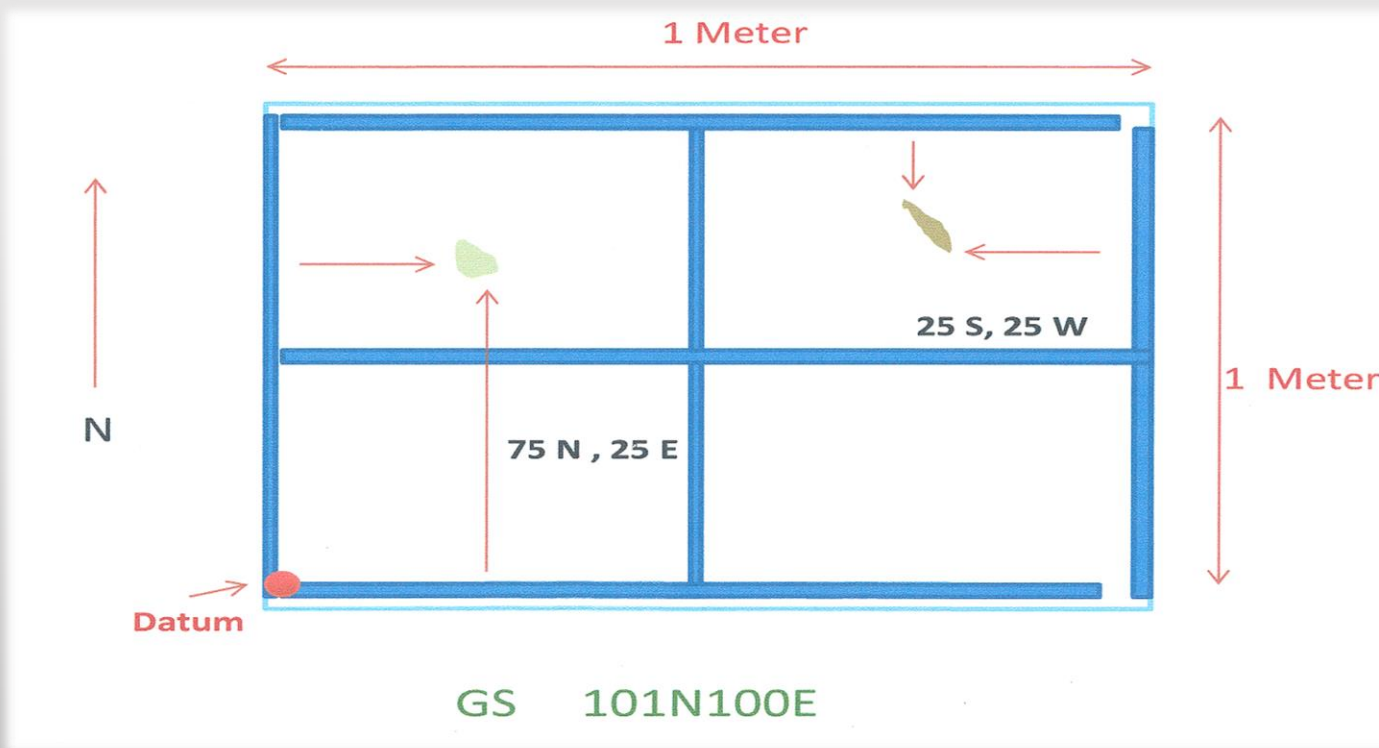


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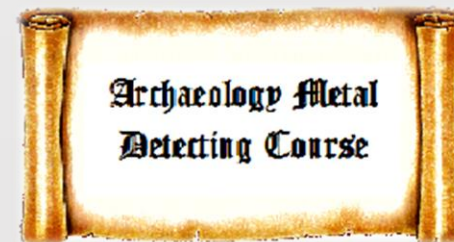
Artifact Recording in Grid Square





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Lesson 1



Artifacts (Provenience) Form

Site Name: _____

Site Location: _____

Unit Number: _____

Date: _____

Recorder: _____

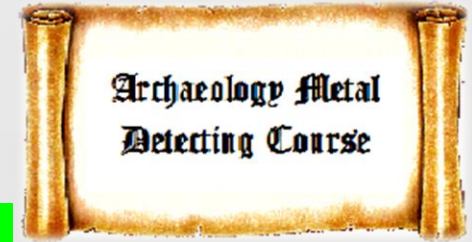
Excavator (s): _____

Description: _____

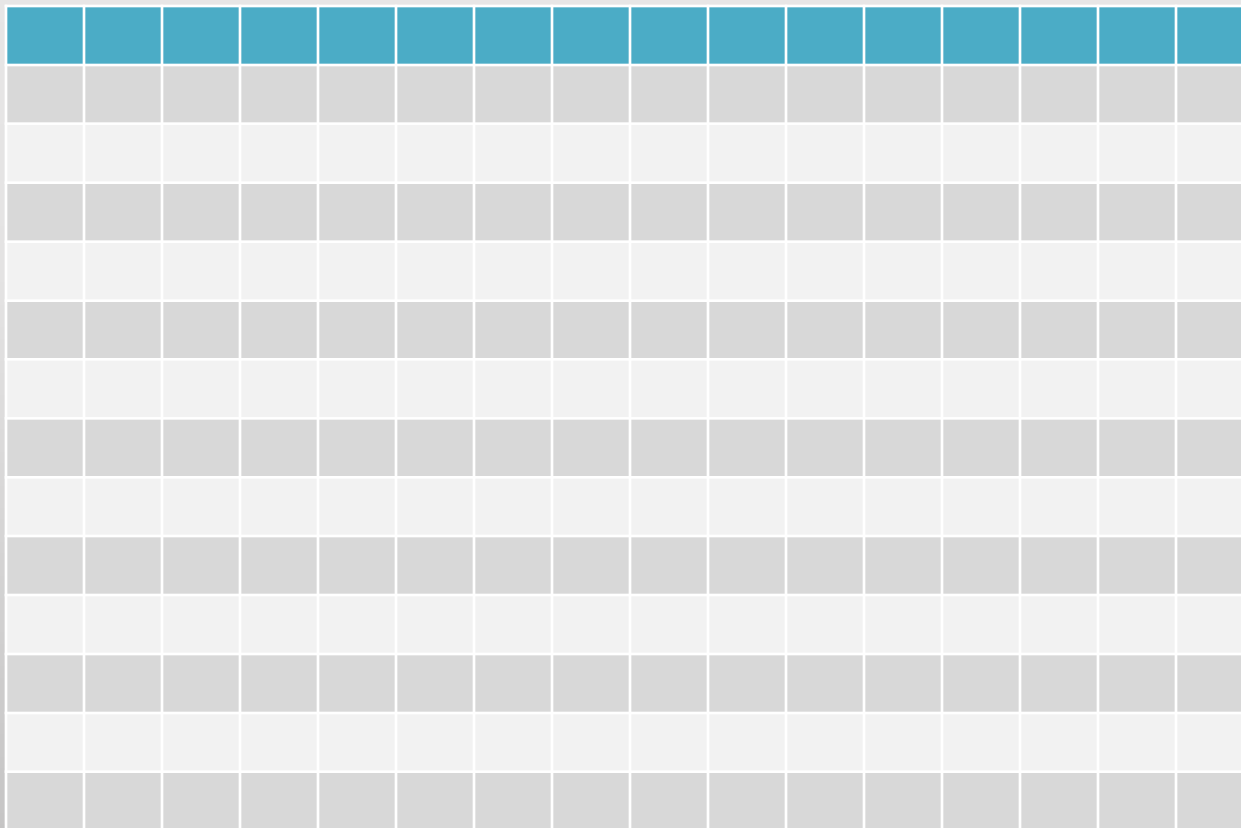


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Lesson 1



Unit / Grid Map



Scale =

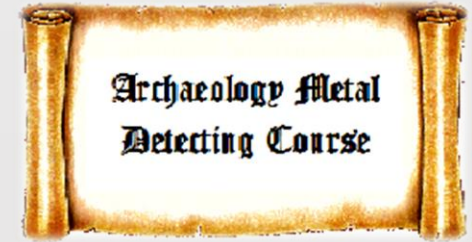
Grid #



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Lesson 1

Coin Reference Form (For Area 50)



Site Name: _____ **Site Location:** _____

Unit #: _____ **Date:** _____

Metal: Gold _____ Silver _____ Copper _____ Other _____

DBD: _____ **GPS:** _____ **LWU:** _____

Measurements: _____ **Quantity:** _____ **LWU:** _____

Legends: **Obverse:** _____ **Reverse:** _____

Team: _____ **Excavator:** _____ **Recorder:** _____

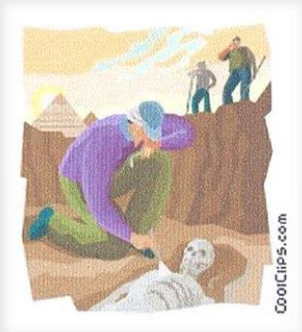
Drawing: _____ **Photograph:** _____ **Bag #:** _____

Notes: _____

Codes:

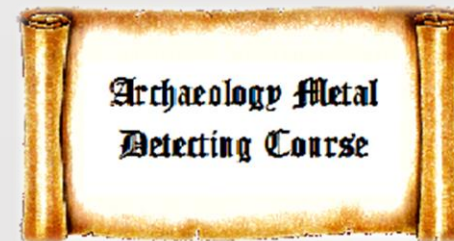
DBD= Depth Below Datum

LWU= Location Within Grid



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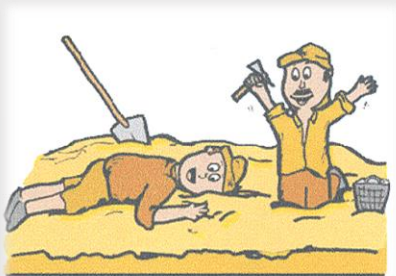
Lesson 1



Work Notes

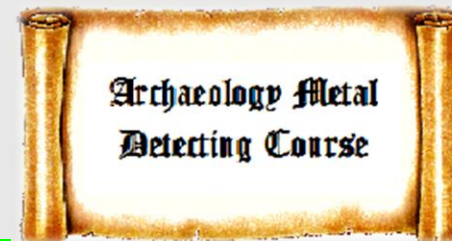
Date: _____ **Recorder:** _____

Site: _____ **Location:** _____



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Lesson 1



Artifacts Bag Info

Site Name: _____

Site Location: _____

Date: _____

Description: _____

Team: _____

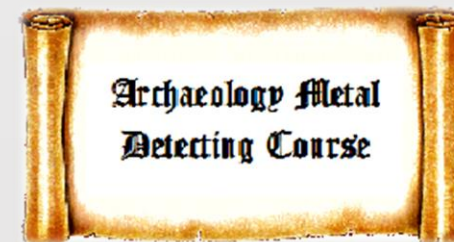
Bag #: _____

This information gets written on the outside of the bag with a black sharpie.



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Lesson 2



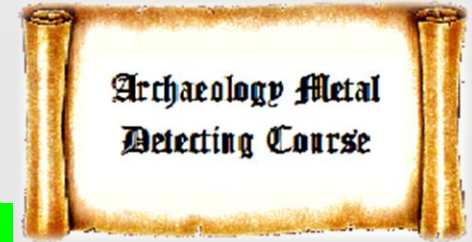
Lesson 2 Field Survey & Excavation

1. **Locate Eight Targets Using Metal Detectors**
2. **Place Team Color Flags at Locations Do Not Dig**
3. **Draw Potential Targets on Area Map**
4. **Dig Targets and Identify Targets, Leave Hole Open**
5. **Measure Depth Using Level / Transit**
6. **Take GPS Readings**
7. **Make Sure To Record Metal Objects On Range Finder / Level / GPS Artifact Form**
8. **Remove Metal Artifacts From Hole**
9. **Fill out Area Artifacts Tag**
10. **Place Artifact in Bag with Tag**
11. **Write Artifact Information on Bag**
12. **Remove Team Flags**
13. **Object is to Collect Three Different Spanish Coins, Gold / Silver / Bronze**
14. **Fill in Holes**
15. **If a Team Completes the Above and has not Found the Items in Step 13, They can Continue to Hunt One Object at a Time till Time Runs Out**

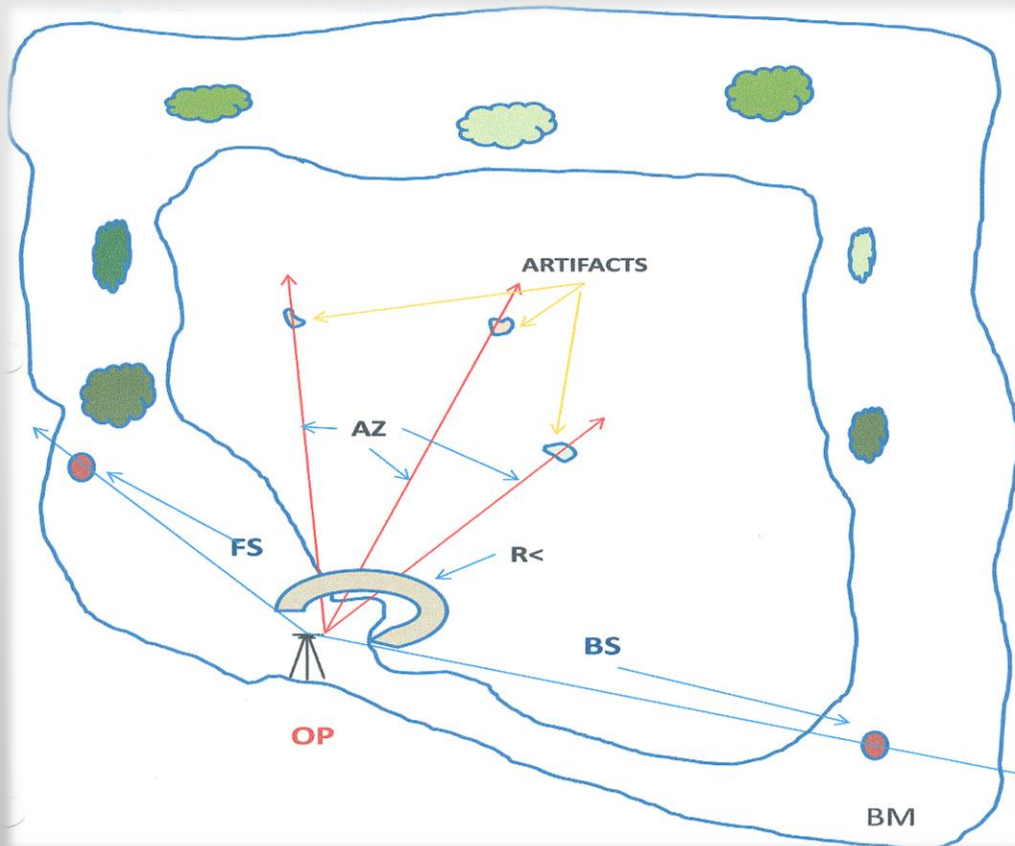


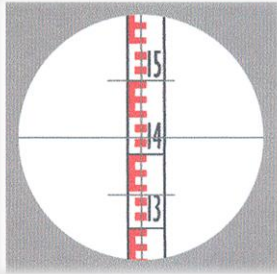
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Lesson 2



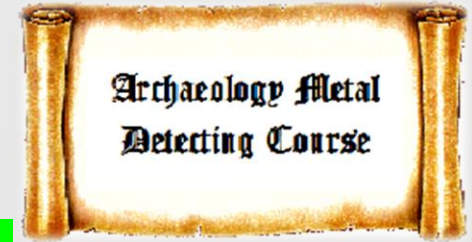
Site Layout





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Lesson 2



Recoding Distance

1. **Tape Measure**
2. **Dumpy Level (stadia)**
3. **Transit (Theodolite)**
4. **Range Finder**
5. **Total Station**

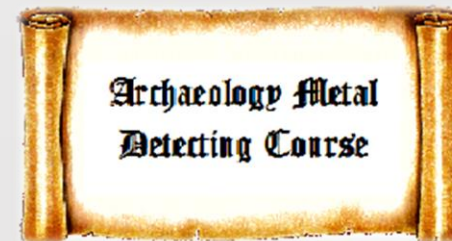


The term **Stadia** marks derives from the obsolete unit of distance, the stadia from the Greeks and Egyptians.



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Lesson 2



Range Finder / Level / GPS Artifact Form

Site name: _____ Site Location: _____ Date: _____

Recorder: _____ Instrument: _____ Rod: _____

Team: _____ Field Supervisors: _____

Occupied Point: Datum GPS _____ PT _____ HI _____

Backsight Point: Datum GPS _____ PT _____ Angle _____

Foresight Point: Datum GPS _____ PT _____ Angle _____

Additional Pages: Yes _____ No _____

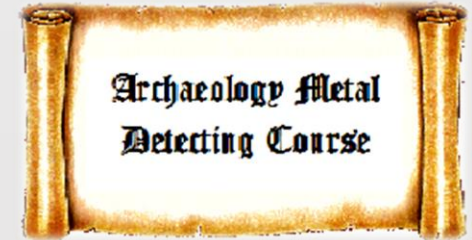
Sketch Map: Yes _____ No _____

Notes: _____



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Lesson 2



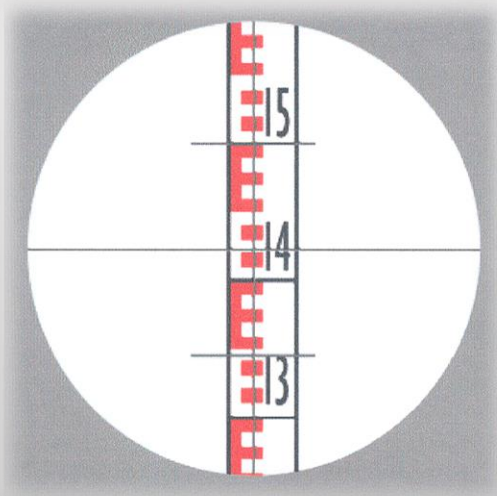
Recording Distance Using a Level & a Leveling Rod

When doing a distance measurement, there are three crosshairs seen when looking thru a level or Theodolite.

The upper and lower are used for distance the middle crosshair for depth.

The upper and lower crosshairs are known as a SMP (stadia mark pair had have a ratio of 1000 to 1).

If one was to read the middle crosshair a reading of 1.422 is resolved.



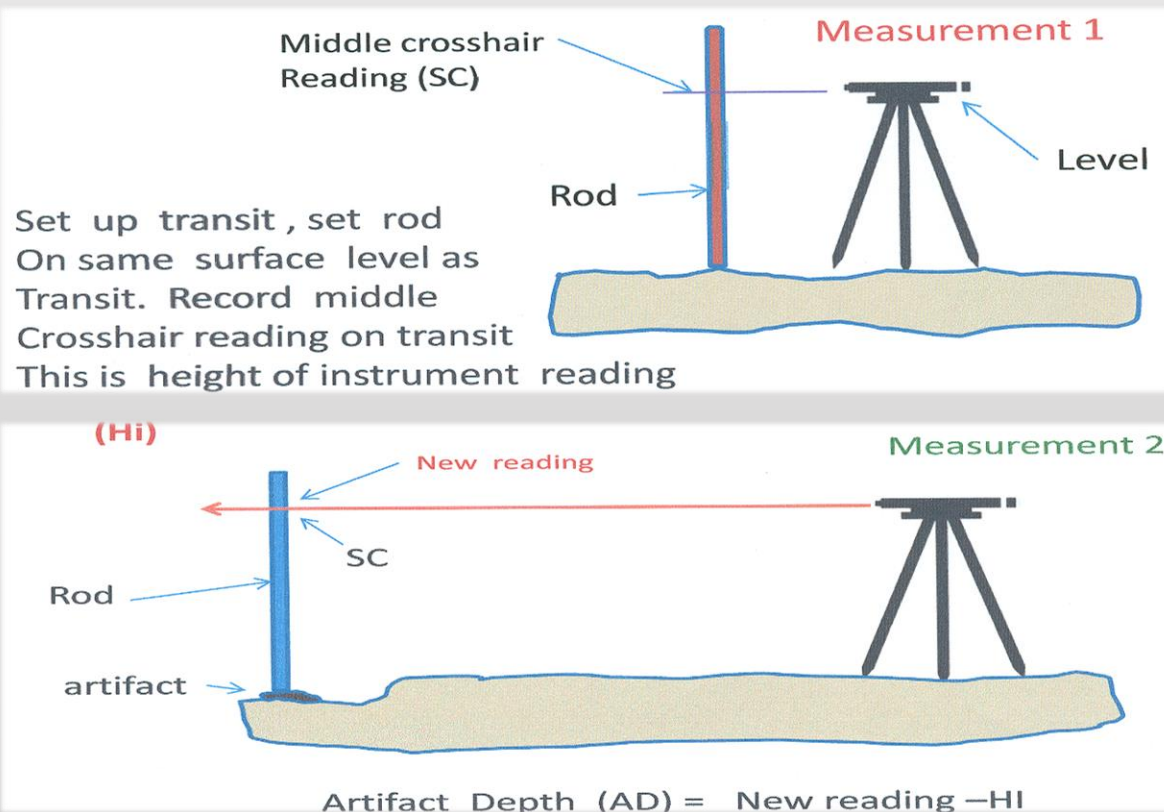


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Lesson 2

Archaeology Metal
Detecting Course

How to Measure Depth of an Artifact



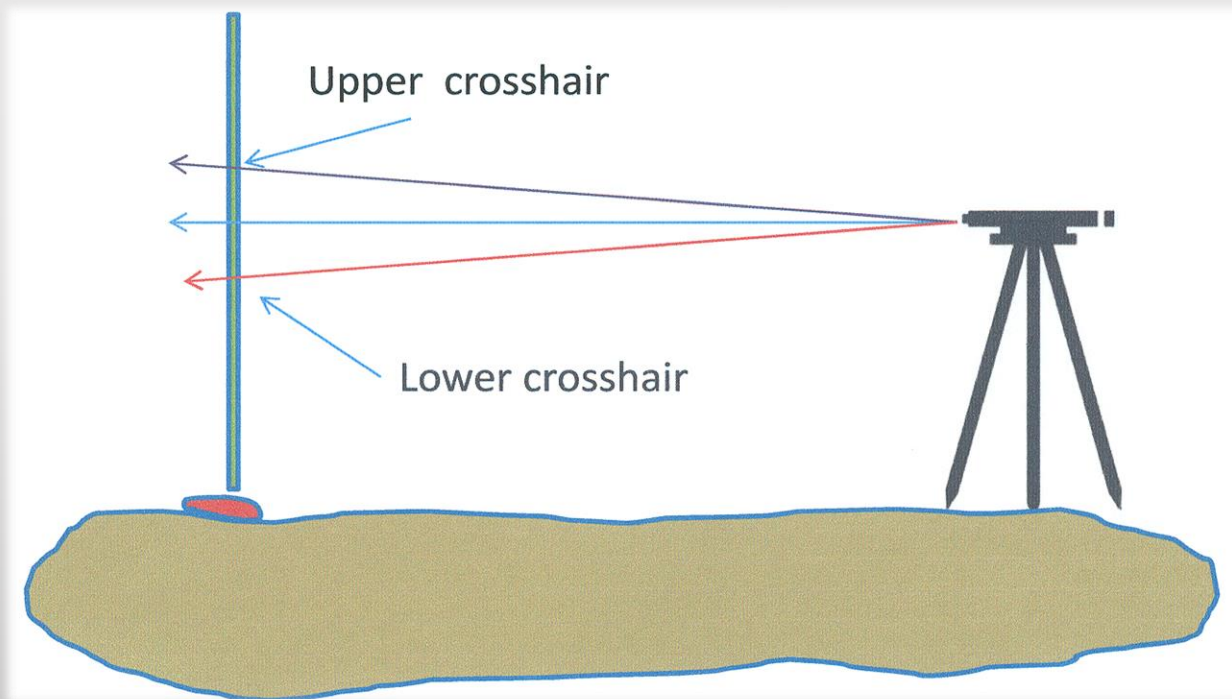


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Lesson 2

Archaeology Metal
Detecting Course

How to Measure Distance to Artifact

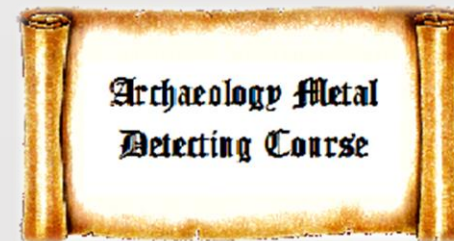


Distance to Artifact (**DA**) = Upper crosshair minus lower crosshair times 100
(**DA= SU-SL*100**)



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Lesson 2



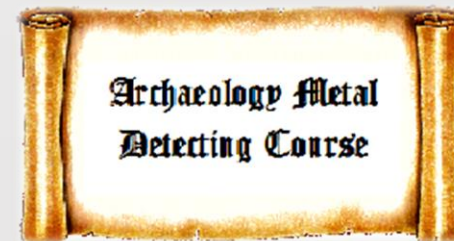
Range Finder / Level / GPS / Artifact Form

PT #	Artifact Angle	GPS	Upper Crosshair	Center Crosshair	Lower Crosshair	Artifact #



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Lesson 2



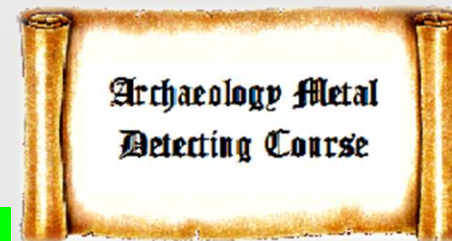
Range Finder / Level / GPS / Artifact Form

Artifact #	Artifact Description	Comment



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Lesson 2



Coin Reference Form (for Area 51)

Site Name: _____ **Site Location:** _____

Area #: _____ **Date:** _____

Metal: Gold _____ Silver _____ Copper _____ Other _____

AD: _____ **GPS:** _____ **TA:** _____

Measurements: _____ **Quantity:** _____ **Condition:** _____

Legends: **Obverse:** _____ **Reverse:** _____

Team: _____ **Excavator:** _____ **Recorder:** _____

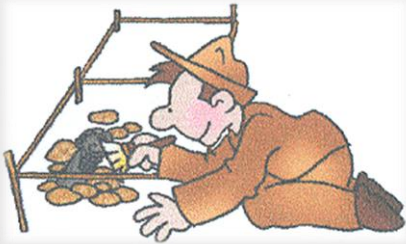
Drawing: _____ **Photograph:** _____ **Bag #:** _____

Notes: _____

Codes:

AD= Artifact Depth

TA= Target Angle / Azimuth

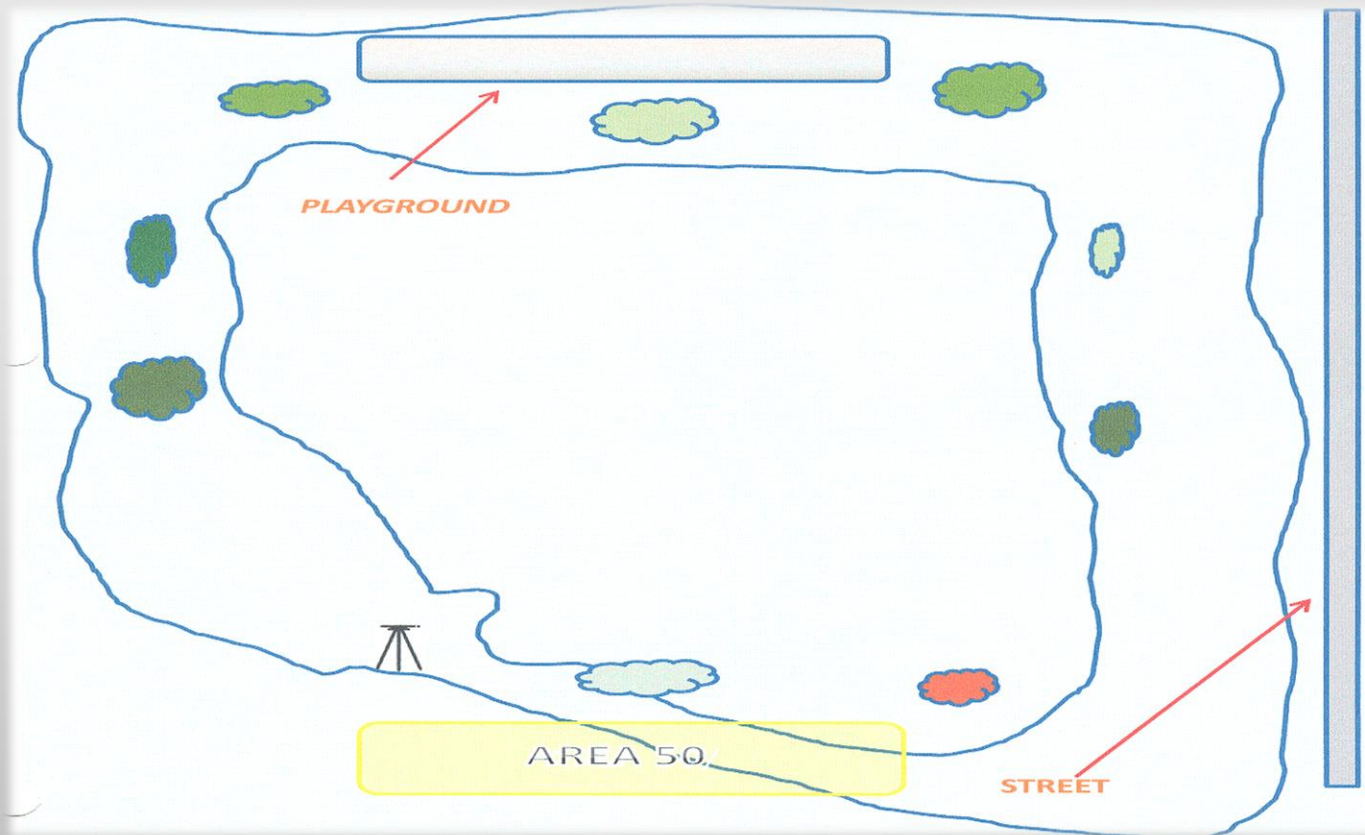


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Lesson 2

Archaeology Metal
Detecting Course

Area 51 Work Map

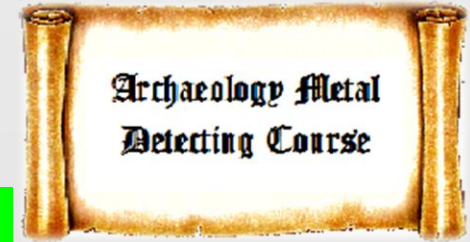




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Lesson 2

Metal Field Conservation Techniques

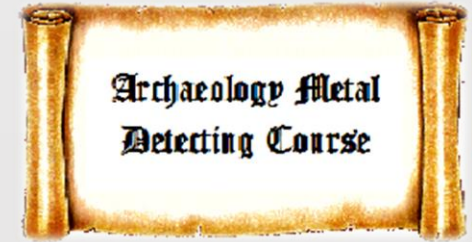


- **Metals are really found native, most are found in the form of ores.**
- **Some metals may deteriorate as soon as they are exposed to air or material containing acids.**
- **Before disturbing broken or fragile objects, make sure you draw and photograph them.**
- **Iron is often rusty, brass, bronze, and copper are covered with a greenish crust of copper carbonates over copper oxides and chloride.**
- **Do not pull metal objects out of the ground because it is often impossible to determine their strength and they can easily break. Carefully clean around the object and pedestal it, undercut the object, and gently lift it out.**
- **To prevent further corrosion in the field, keep metal dry and pack it in silica gel.**
- **Particularly fragile artifacts should be put in rigid containers for transport to the laboratory.**
- **Keep all metals dust-free, in low humidity, and in acid-free packaging. Do not touch unless absolutely necessary.**
- **Resist the temptation to clean coins in the field.**
- **Do not put metal in plastic bags as moisture will soon accumulate.**
- **All metals should be cleaned in the laboratory. If you try to remove corrosion in the field, you will likely irreparably damage the object. Do not wash metal artifacts in the field or try to repair them.**



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Lesson 2



Area Artifact Bag Tag

Site Name: _____

Site Location: _____

Site #: _____

Date: _____

Recorder: _____

Excavator: _____

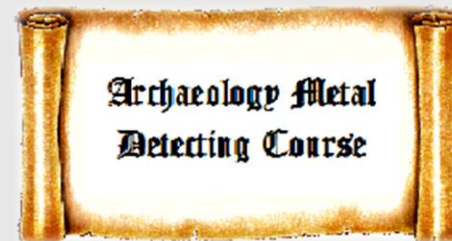
GPS Location: _____

Description: _____



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Lesson 1



Team Evaluation Form Lesson #1

Lesson #1

Poor to Good

Grid Layout:

1 2 3 4 5

Establishing Datum:

1 2 3 4 5

Determining Artifact Location:

1 2 3 4 5

Locating Metal Objects / Flagging:

1 2 3 4 5

Initial Recording:

1 2 3 4 5

Final Recording:

1 2 3 4 5

Bagging / Tagging:

1 2 3 4 5

Team Cooperation:

1 2 3 4 5

Other Team Interactions:

1 2 3 4 5

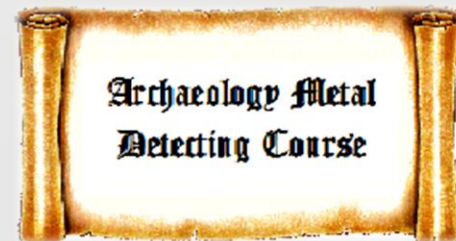
Completion in Time:

1 2 3 4 5



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Lesson 2



Team Evaluation Form

Lesson #2

Lesson #2

Poor to Good

Initial Paperwork:

1 2 3 4 5

Determining Height of Instrument:

1 2 3 4 5

Location of Targets:

1 2 3 4 5

Flagging and Initial Mapping:

1 2 3 4 5

Excavation Technique (Following Procedures**):**

1 2 3 4 5

Measuring Depths with Transit and Rod:

1 2 3 4 5

Measuring Target Angles:

1 2 3 4 5

Recording of GPS Readings:

1 2 3 4 5

Recording Distance of Targets:

1 2 3 4 5

Completion of Area Map:

1 2 3 4 5

Recording of Artifact / Bagging:

1 2 3 4 5

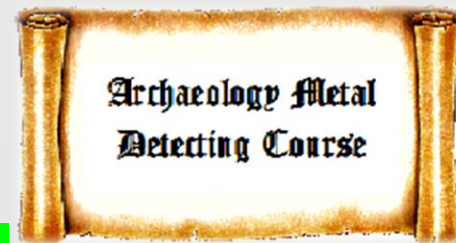
Completion of Lesson in Time:

1 2 3 4 5



AMDC

Lesson 1 & 2



Participant Note Form

Site Name: _____ **Site Location:** _____ **Date:** _____

Study Unit: _____ **Supervisor:** _____ **Participant:** _____

Team / Members: _____ **Recorder:** _____

Draw a plan map of your area you worked in (be sure to include a scale and a north arrow.)

Did you excavate in a natural strata or arbitrary levels? What tools did you use (shovel, towel, brush, etc)? _____

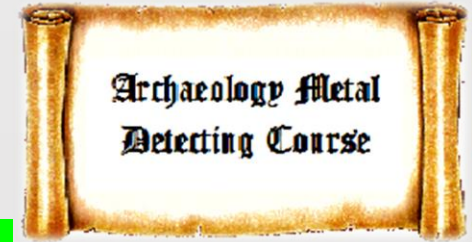
What Types of Artifacts and samples did you collect? _____

On the basis of the information recorded above, what activities do you think took place in the area you were working? _____



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Lesson 1 & 2



Participant Note Form

What was the hardest thing you learned from this course? The easiest?

Did you accomplish what you set out to learn from this course?



AMDC

Archaeology Metal
Detecting Course

Archaeology Glossary

Absolute dating: Dates expressed as specific units of scientific measurement, such as days, years, centuries, or millenia; absolute determinations attempt to pinpoint a discrete, known time interval.

Adze: A tool, typically made from stone, that was presumed to be used like a modern woodworker's chisel to work wood.

Anthropology: the comparative study of human culture, behavior and biology and how these change through time.

Archaeology: a method for studying past human culture based on material evidence (artifacts and sites)

Archaic Stage: In Alabama, the stage when early Native Americans lived in small, semi-nomadic bands and survived by hunting, fishing, and foraging for wild foods.

Artifact: any object made, modified or used by humans. Usually this term refers to portable objects.

Atlatl: a tool used to throw spears faster and with more accuracy, also known as a spear thrower. It consists of a short pole with a handle at one end and a hook for engaging the spear in the other.

Awl: a small pointed hand tool used for piercing holes in leather, wood and other materials.



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Celt: A thin, ungrooved axe with a sharp edge used for cutting or chopping. Probably hafted into a wooden handle.

Chieftdom: Societies headed by important individuals with unusual ritual, political, or entrepreneurial skills. The societies tend to be kin-based, but is more hierarchical, with power concentrated in the hands of powerful kin leaders, who are responsible for the redistribution of resources.

Chronology: The arrangement of events or periods of time in the order in which they occurred.

Chunky: This game was played by almost all of the southeastern Indians, with some variation. All of the games made use of a smooth stone disk, usually with concave sides, and two long slender poles were used. Usually only two persons played at one time, but the onlookers wagered on the game. The idea of the game was to start the stone disk rolling along a smooth piece of ground, after which the two players threw their poles after it, with the idea of either hitting the stone, or coming as near as possible to it, when the stone came to a rest.

Context: the relationship artifacts have to one another and the situation in which they are found.

Contact period: refers to the period from A.D. 1500 to 1750. Within this broad framework, initial Native American and European contacts, whether through people, things, or ideas, occurred at different times throughout the state.



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Core: A piece of stone that is worked ("knapped"). Cores sometimes serve merely as sources for raw materials; they can also serve as functional tools.

Cosmological: one's view of the universe.

Culture: the set of learned beliefs, values, styles and behaviors, generally shared by members of a society or group.

Diagnostic artifact: an item that is indicative of a particular time and/or culture group

Direct historical approach: learning about the past by studying sites and cultures of a known time and working backwards, applying it to older sites; working from the present into the past.

Distribution: A spatial or temporal array of objects or events.

Descendent: Proceeding by hereditary derivation from an ancestor.

Effigy: An object bearing the likeness of an animal or human.

Ethnographic analogy: inferring the use or meaning of an ancient site or artifact based on observations and accounts of its use by living people.

Excavate: the principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and the other material covering them and accompanying them.

Excavation unit: an area of excavation on an archaeological site; most often archaeologists dig in square meters.



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Experimental archaeology: a method of studying artifacts by making and using replicas of them.

Feature: a human-made disturbance in the ground, such as a pit or basin; it is often marked by a distinct stain in the soil.

Flake: A thin piece of stone removed from a larger piece with a hammer (usually made of antler or stone). Flakes have sharp edges and were sometimes used as cutting implements.

Gorget: An ornament worn on the chest, suspended around the neck.

Graver: A small tool with a sharp tip that was used to engrave bone, stone, wood or other materials.

Hammerstone: A stone, usually a rounded hard river pebble that shows battering scars resulting from repeated use as a hammer or platform in the flaking process.

History: The study of past events and culture based on written records.

Law of Superposition: The geologic principle stating that in any pile of sedimentary rocks that have not been disturbed by folding or overturning, each bed is older than the layers above and younger than the layers below.

Lithic: Relating to stone.



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Looting: To steal, or illegally take, artifacts from an archaeological site; the act of which destroys the evidence archaeologists need to learn from the site.

Megafauna: Large beast, now extinct that roamed Alabama after the last ice age; examples include giant bison, mastodon, woolly mammoth, giant ground sloth, and peccary.

Midden: an area used for trash disposal, a deposit of refuse.

Mississippian stage: In Alabama, the cultural period usually marked by the formation of large settlements around mounds, the use of shell tempered pottery, increased reliance on cultivating crops, such as maize, and the organization of the people into a chiefdom.

Net Sinker: (also "net weight", "sinker"): a rock used to submerge a fishing net. May be grooved, notched or perforated.

Nomadic: a way of life in which a group of people have no permanent residence, but move from place to place.

Observation: the act of recognizing a fact or occurrence, or the record obtained by such an act.

Paleoindian stage: In Alabama, the first recognized cultural period in the region, usually marked by the appearance of projectile points such as Clovis or Dalton. Paleoindians are characterized as nomadic hunters of megafauna.

Paleontologist: The study of the forms of life existing in prehistoric or geologic times, as represented by the fossils of plants, animals, and other organisms.



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Palisade: A walled enclosure built around a village or town, a stockade.

Permanent village: A settlement that is continuously occupied by people throughout the year.

Petroglyph: a design chiseled or chipped out of a rock surface

Phase: An archaeological construct possessing traits sufficiently characteristic to distinguish it from other units similarly conceived; spatially limited to roughly a locality or region and chronologically limited to a relatively brief interval of time.

Pictograph: a design painted on a rock surface.

Postmold: A circular soil discoloration caused by decay of a wooden post where it had been buried upright in the ground.

Pottery: A ceramic item or material made of hard clay, usually in the form of a vessel.

Prehistory: The period of human experience prior to written records; in the Americas prehistory refers to the period before Europeans and their writing systems arrived, covering at least 12,000 years.

Preserve: To keep safe or protected from harm.

Primary source: an original diary, letter, or other document written by someone.

Profile: a section, or exposure of the ground, showing depositional or developmental strata or horizons.

Projectile point: A pointed implement (usually made of chipped stone) that was attached to the end of a spear or an arrow. This is a general term that includes both spear heads and arrowheads.



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Relative dating: Dates expressed relative to one another (for instance earlier, later, more recent, after Noah's flood, and so forth).

Rock art: A general term for the pecking, incising, or painting of designs onto rock surfaces.

Rock shelter: a shallow cave or rock overhang large enough to have allowed human occupancy at some time.

Scientific method: The principles and empirical processes of discovery and demonstration considered characteristic of or necessary for scientific investigation, generally involving the observation of phenomena, the formulation of a hypothesis concerning the phenomena, experimentation to demonstrate the truth or falseness of the hypothesis, and a conclusion that validates or modifies the hypothesis.

Scraper: A stone tool designed for used in scraping hides, bones and other similar materials in the preparation of food, clothing and shelter. A small stone blade with uniface flaking.

Secondary source: an account or summary of a historical event not based on direct observation.

Sedentary: Remaining or living in one area; not migratory.

Sherd: a piece of broken prehistoric or historic pottery or glass. (Pronounced to rhyme with "herd.")

Site: A place where human activities occurred and material evidence of these activities is left.

Stage: Represents a designation of time that is much larger than a phase. In Alabama there are four Prehistoric stages: Paleoindian, Archaic, Woodland, and Mississippian.



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Steatite: A type of stone that is soft and easily carved; also called soapstone.

Steward: one who acts to preserve and/or protect archaeological sites or artifacts.

Stickball: (Similar to Lacrosse) A ballgame played with sticks with nets at one end and a deer hide ball. The object is to use the netted sticks to throw the ball into the goals at the ends of the fields.

Strata: Layers (the plural of stratum); in archaeology this term generally refers to layers of earth.

Stratigraphy: The layering of deposits at an archaeological site. Cultural elements and natural sediments become buried over time. The layer on the bottom is the oldest and the top layer is the youngest.

Subsistence: the means of supporting life, usually referring to food and other basic commodities.

Vessel: A hollow or concave utensil for holding something.

Weir: A fence or wattle placed in a stream to catch or retain fish.

Woodland Stage: In Alabama, the cultural period that is marked by the appearance of pottery, the advent of horticulture, and the advent of elaborate ceremonialism.