

Teacher's Companion™

for *Perseus*® 2.0

Greek Agricultural & Husbandry

Wendy E. Owens



AbleMedia



Teacher's Companion™

for *Perseus*® 2.0

Greek Agriculture and Husbandry

Copyright © 1998 by AbleMedia
50 Clark Street, Medford, MA 02155-4474
All Rights Reserved

No part of this assignment may be reproduced by any mechanical, photographic, or electronic process, or in the form of a phonographic recording, nor may it be stored in a retrieval system, transmitted, or otherwise copied for public or private use, without the written permission from the publisher.

Printed in the United States of America.

Perseus is a registered trademark of the President and Fellow of Harvard College and the Corporation for Public Broadcasting.

All copyrights and trademarks are the property of their respective owners.



Strategies for Using *Perseus* in the Classroom

I. How You Make a Good Start

Students' first impression of a software program has a lasting effect on their willingness to use the program. *Perseus* is no exception. While it is relatively user friendly, the volumes of information it contains can be overwhelming. To preclude the huge *Perseus* database from being intimidating, an instructor must teach students how to use the *Perseus* program. Students who are computer literate might easily grasp the mechanics of using the program, but they are unlikely to learn how to *think* with *Perseus* without careful instruction and practice. On their own, students are likely to learn how to use the basic menus and buttons in *Perseus* quickly but then begin to surf through the program in a random search for entertainment while actually learning very little. Exploration is vital, of course, but it will not get the assignment done; this takes skills that can be developed only through directed learning. So a student's first few encounters with *Perseus* must be structured.

II. How You Create a Learning Environment

"What are my objectives?" When you bring *Perseus* into the classroom you must have an initial set of objectives in mind. These objectives will evolve as you and your students become familiar with the program. It is important to set objectives at the outset because adjusting to using *Perseus* in the classroom is unlikely to be effortless. To achieve your objectives it is especially important that *you* become a good *Perseus* user. This includes being aware of possible glitches you may encounter in the program, in the classroom and with the your computer system. As you develop your approach to using *Perseus*, and learn how your students are inclined to use the program, your objectives will become more refined. They will also be more readily achieved. A good idea is to try to become familiar with the database along with your students. But avoid surfing. By learning how to use the database together in a disciplined manner, you can create a community learning infrastructure to which every one contributes knowledge and insight based on a foundation of mutual support and enthusiasm.

III. Acquiring the Resources You will Need

"What resources will I need to reach my objectives?" To do the job right, the hardware and software requirements are: basic configuration Macintosh LC or higher with at least 8 Mb of RAM, a hard disk, a color monitor and an Apple-compatible compact disk player, plus the appropriate connectors and power cables. The model (processor) of Macintosh you have determines the speed at which *Perseus* and other applications will perform their functions. *Perseus* requires an up-to-date version of Macintosh system software and the QuickTime™ system extension from Apple, which should be standard with System 7.0 or higher on your computer. *Perseus* 2.0 will ship with Perseus Player for use with the program. *Perseus* can be used over an AppleShare™, Novell™ or Tops™ network.

IV. Overcoming Limited Resources

"What if I only have one copy of Perseus?" So you only have one copy of *Perseus*, this is no reason not to make use of *Perseus* in the classroom. *Perseus* can aid you in your every-



day lessons both directly and indirectly. The most important thing to do is to make the most of what you have despite a lack of resources.

An indirect use of *Perseus* in your everyday lessons is to use *Perseus* for research that can be reworked into worksheets and information for distribution in class. You may then use your document as an example of the students themselves can do with *Perseus*. The *Knowledge Builder™*, "How to use *Perseus* with a Word Processing Program," teaches you how to take information from *Perseus* and organize it into a document. The documents and worksheets that you create may also include images. The print quality for *Perseus* images printed from a laser printer are very good.

There are quite a few ways to integrate *Perseus* directly into your daily lessons. The first method of integration is to actually have *Perseus* in the classroom. It is always best to orient your students to *Perseus* in a controlled situation. You using *Perseus* while it is projected onto a screen or wall is the most control you can have. It works best to create a Path or to have an organized series of steps made up prior to demonstrating *Perseus* in the classroom. You should be confident in each one of the steps in your Path or demonstration and in the use of *Perseus*. *Students smell fear*. If you are having trouble with the program this will lead others to believe that it is not user friendly. Once you have a lesson prepared then it is safe to begin using *Perseus* in the classroom. As you learn the program then it will become easier for you to simply move about without having practiced your moves.

V. Equipment you will need to use *Perseus* in the classroom

There are a few ways in which you can make *Perseus* more easily visible for your class when using the program in the classroom. One is to use a large computer monitor, this works fine in a small class but tends to alienate those in the back row of a large class. For a class of 12 students or less, a 27" or larger high resolution monitor works well. Otherwise it is best to use some kind of projection system. The least expensive type of projection systems is an LCD (liquid crystal display) panel and an overhead project. If you use a panel, make sure that it is an active matrix panel. These are more expensive than passive matrix panels, but are capable of showing animation and video. It is best to have an overhead whose light runs at least 4000 lumens. A shoddy overhead project with a dim bulb will ruin the images from even the best LCD panel.

One step above the LCD panels are digital color projectors that are basically the LCD panels with a light source included. And even better than these are the 3-tube video projectors. If all courses using *Perseus* can be held in the same room it is recommended that a 3-tube video projector be permanently mounted from the ceiling of the classroom used for computer demonstrations. The three-tube video projectors provide much better image quality than the majority of the LCD panels and projectors.

An alternative to projecting is to use a large, high resolution monitor and a videodisk player to show images. To use the *Perseus* videodisk in tandem with the *Perseus* CD-ROM, it is necessary to have a video monitor (any color video monitor that can be



connected to the videodisk player will work), a videodisk player, and the appropriate cables to connect them to each other and to the computer. *Perseus* 1.0 includes the driver to run the videodisk right from the Macintosh. *Perseus* 1.0 will support these videodisk player models: Pioneer 4200, 6000A and 6010A, Sony 1500, 2000 and LDP 1200, and Hitachi 9550. The videodisk player will allow you to show all images and motion video on the *Perseus* videodisk but you will not be able to show any of the site plans and architectural plans since the videodisk does not contain them. Digitized images do have better resolution than the video images but the projection setup you choose depends, of course, on the resources you have available.

VI. Demands on You as the Instructor

“What resources should I provide to my students?” Your students’ foremost requirement is for a good instructor: *you*. Don’t be hesitant about this. Resources are available to help you quickly become a first rate instructor by letting you learn how to use *Perseus* as your students are learning. You should spend somewhere between one and two hours teaching students how to use the program. Then you move to structured assignments that allow them to use *Perseus* successfully.

VII. Demands on Your Community

“What kind of support should my school offer my students?” Number one on the list should be User Support. This may mean that you are available to help when students are using the program independently and/or it may mean having the ready support of other students who are particularly adept at using the program. Maybe it will be necessary only to educate the computer gurus in charge of the lab how to use the program so that they can be called on for help; or it could mean simply having reference materials readily available to the student who gets stuck. Students who are left without some sort of support will more frequently feel lost and frustrated than those that have some kind of support. Recovery from a sense of disorientation takes time and will not have a completely detrimental effect on the student’s *Perseus* experience but will most certainly do damage. Prevent disorientation and the “I hate *Perseus*” syndrome, provide some kind of user support.

VIII. Build Your Students’ Confidence

There clearly is an order in which students should learn how to use *Perseus*. First, the student should learn the database tools and Links. This can be interesting because it can be done while they are learning about ancient Greece, its art and archaeology and its literature. With a carefully structured introduction to the mechanics of using *Perseus*, you will avoid students fumbling through the program and becoming disoriented by the voluminous information packed in it. Confidence built by a good start will prepare students to explore the program on their own successfully and demonstrate to them how they can make discoveries on their own through the projects and exercises you assign. They should recognize that *Perseus* does not have all the answers but has clues to solving the problem at hand. *Perseus* is just a big screw driver, a tool to help them construct a solid argument. They are the ones who construct the argument and make discoveries using the tools they have available.



Work up to an encounter with large amounts of information. For instance if you perform an English Word Search for the word "Zeus" in all the Links, *Perseus* will list 2320 citations. If a new user had to sift through all this information the pain and frustration would only be detrimental. An intermediate user has the skills to filter through all this information and to find the relevant facts.

Provide students with the knowledge that the skills they learn by using *Perseus* are invaluable. The ability to filter out usable information is a necessary skill for succeeding in college or any job. Tools like *Perseus* have been or are being developed for many different subjects so the skills students learn are practical and may be applied to programs and databases in other subjects.

IX. Group Assignments to get things Rolling

Since we all do not follow the same train of thought each individual will use *Perseus* differently. This can lead to interesting results and discoveries. It can also lead to some students becoming bogged down by the tremendous amount of information available in the database. Solve this problem by having the students work in groups or pairs initially since two heads may be better than one. Prevent tension within these groups or pairs by having them evaluate each other and themselves in regards to how much work each person did on the project. Base the overall grade on the final product, the rating of a group's members by other members and the individual's perception of their own work. Once the students have completed a few simple *Perseus* exercises and a group project, they will be more comfortable using the program on their own for research.

X. What you should anticipate

In terms of problems with the computer system expect the unexpected. Each computer has its minor quirks that hopefully you will never encounter. To make sure *Perseus* runs smoothly check the following things:

- All cords are connected properly.
- All the necessary software is installed properly. (Follow the installation directions in the *Perseus* User's Guide.)
- Check that Perseus Player is set to run at least 4000K if you have more than 8 Mb of RAM available on your computer. If you have more than 12 Mb of RAM, *Perseus* 2.0 will run great if Perseus Player is set at 6000K.
- Make sure that there is only one copy of Perseus Player on your hard drive.

On the human side, expect some students to use the program for each and every assignment. Expect other students not to use the program unless required. It is not that students are afraid of the program, as long as they have the proper training and support, but that some students feel more comfortable using other means to reach their ends. Be clear about the desired outcome of a project. Periodically check on students' progress, especially with their first independent assignment, to make sure that they are not lost or have not gone off on some tangent.



XI. What's Ahead

The remainder of this *Teacher's Companion* covers information on a specific topic. You will find suggested assignments for use at both the high school and college levels. These assignments may be altered to be longer or shorter and to be done as an in-class assignment or a take home project. You will also find suggestions for what to do if you have limited resources and computers. The suggestions will help you to create a participatory or interactive classroom activity when only one copy of *Perseus* is available.

Lastly, the Appendix provides sample exercises and keys for model assignments that may be used as structured introductory, intermediate and advanced assignments. Enjoy using the database. It is only a tool and can never replace a teacher. Teachers are the key to learning and to making the most of the information available to students by bringing insight to the unknown and newly discovered.



Greek Agriculture and Husbandry

Prior to using *Perseus*: Exposure to the Greek Alphabet

If you intend to use *Perseus* in the classroom or to have your students use *Perseus* for research at the beginning, middle or end of an unit or course, it is best to expose them to the Greek alphabet. Exposure through transliteration will allow students to make better use to the database without fearing the Greek words they will run into.

In connection with Greek Agriculture and Husbandry, students should examine the Greek words that have been transliterated into English, often via Latin. Either in class or as an out-of-class exercise, have students turn the following words into would they believe to be the proper Greek spelling. Students should be supplied with a transliteration chart such as the one below. Once they have what they believe to be a Greek spelling have them check the spelling with the real Greek found by performing a search for each word in the English-Greek Word List in *Perseus*.

WORDS TO LOOK UP: *agriculture, olive, farmer, horse, field, Artemis.*

A. α	a	alpha	I. ι	i	iota	P. ρ	r	rhô
B. β	b	beta	K. κ	k	kappa	Σ. σ. ς	s	sigma
Γ. γ	g	gamma	Λ. λ	l	lamda	T. τ	t	tau
Δ. δ	d	delta	M. μ	m	mu	Υ. υ	u	upsilon
E. ε	e	epsilon	N. ν	n	nu	Φ. φ	ph	phi
Z. ζ	sd	zeta	Ξ. ξ	xi	x(sk)	Χ. χ	k-h	chi
H. η	e	eta	Ο. ο	o	omicron	Ψ. ψ	ps	psi
Θ. θ	th	theta	Π. π	p	pi	Ω. ω	ô	omega

When You Only Have One Copy of *Perseus*

With the right preparation any of the exercises suggested can be done in the classroom with a single copy of *Perseus*. The exercises can also be revised, shortened or lengthened, for out-of-class projects. Professors and teachers alike have recommended a sign-up procedure be put in place when a single copy of *Perseus* is available. Students should be instructed on the use of *Perseus* before sitting down to use the program and some kind of support should be available when they use it on their own.

The computer on which students will do their research should be easily accessible. It should also be designated or prioritized as the "*Perseus*" computer to avoid conflicts in its use. Try some of the following assignments in the classroom. Review each step that you will perform before you try it in front of an audience.



Assignment Suggestions

Time Line

The construction of a time line is an excellent orientation tool to what happens in an epic poem, myth or historical period.

Artistic Assignment

How often are students in a history or language class asked to be artistic? Art plays a major role in all aspects of ancient Greek studies. It was and is a medium of education. Close examination of the art from the past may teach a student more than she/he can learn from a book or lecture. Students can design their own vases, sculptures or coins relating to their chosen or assigned topic.

Open Ended Discussion

What issues faced the ancient Greeks that are not of relevance to us today? What issues are relevant to people now and then? Come up with some questions that have no real answer and create a dialog between those in the class.

Word Analysis

Students do not have to know Greek to make use of the English to Greek Word Search. The appearance of the word in question in a definition found in the Greek-English Lexicon offers clues to its true meaning or to what the Greeks really meant by its use.

Art & Literature Comparisons

Sophocles' plays were social commentaries but did you ever think that a vase could serve the same purpose? After reading Sophocles' *Ajax*, a comparison to what happened in the play in regard to Achilles' armor and Ajax's suicide, was made between the text and vases that depict the scenes from the play. The play describes Ajax falling on his sword to take his own life but a vase depicts Ajax stabbed through the back with his sword. What is the painter trying to say with this depiction?

Family Trees

If you were to look at the Encyclopedia entry for any god or goddess, mythical or historical figure you would find notes describing their origin and offspring. From these Encyclopedia entries, family trees are easily constructed.

Atlas Assignment

Ancient Greek literature is filled with place names. References to sites where mythological births, deaths, travels or conflicts occurred are numerous. The Atlas is an excellent tool with which students may become familiar with the places and geographical areas from myth and literature. Combing the Atlas' maps with actual site images will enhance students' understanding of the world in which heroes lived and died, gods decided men's and women's fates and people went about their daily lives.



Assignments

These assignments serve many purposes. They are exercises in research, the use of specific *Perseus* Links, word analyzation and evaluation of information both textual and visual. The topic of each exercise can be changed without having to alter or write a new assignment. Because of the amount of information and its accessibility in *Perseus*, high school students and undergraduates will be able to do these assignments at a level previously achievable only by graduate students and professors.

Word Analysis

The daily life of an ancient Greek farmer was not one filled with the bucolic pleasure they would have probably preferred. Labor and hard work fed them and their family and offered some livelihood. The results from an English-Greek Word List search for the words 'labor' and 'leisure' appear in summary form below. Note the English spelling of 'labour', this is how it must be spelled when performing an English Word Search. Students may examine the two words and their Greek equivalents. Questions for discussion may include the following:

1. Do the words associated with labor in the definitions of the Greek words have a negative tone to them? Why might this be so?
2. From the definitions of the words associated with leisure, do you feel that leisure may have been looked down upon?
3. Would the Greeks have considered today's service jobs as labor?

Labor (4)

ἐργασία - work, daily labour, business.

ἀσχολος - without leisure, engaged, occupied, busy.

μόγος - toil, trouble.

μόχθος - toil, hard work, hardship, distress, trouble.

ἀργία - idleness, laziness, in good sense, rest, leisure.

πόνος - work, esp. hard work, toil.

ἡσυχία - stillness, rest, quiet.

κακόσυχος - using one's leisure ill, indolent, lazy.

σχολή - spare time, leisure, rest, ease.

Leisure (14 words)

One Step Further

The analysis of the words 'labor' and 'leisure' can be taken one step further with an examination of how authors used specific words. For instance, Homer uses one word defined as "leisure," ἡσυχία, and he uses it to mean "stillness, rest, quiet." What assumptions can be drawn about Homer and the people of his time from this information? In a later time Hesiod uses ἡσυχος, "still, quiet, at rest, at ease, at leisure" in reference to leisure activities demonstrating a better understanding of leisure activities or lack thereof.



Sustenance Farming to Specialization

A comparison of the text of Hesiod and others will offer insight into the world of the everyday farmer and those who owned estates. Since not all men could be rich some, like the one described by Hesiod, most men had to work year round to sustain their family. Men like Homer's Odysseus had slaves who performed the specialized task of animal herding and orchard tending. The estate owners' self-sufficient farms became specialized and wider trade routes allowed the 'every-man' the opportunity to acquire food in the market instead of from his own fields.

Students should examine the self sufficient estate of Odysseus and the types of animals and crops raised there. Next they should look at Hesiod's *Works and Days* for information on the crops raised by the everyday farmer. Finally they should examine the descriptions of specialized and tenant farming in the text of Herodotus, Thucydides and Apollodorus and in the Historical Overview.

1. How did estates such as Odysseus' the help small farmer?
2. What effect on smaller farmers did specialized farms have?
3. What is a benefit of specialized farming and husbandry?
4. Imagine you are a poor farmer who has extra grain at the end of the season to trade in the market place. What do you trade it for?
5. How does the rise of specialized farming mirror what has occurred in the United States over the past two centuries?
6. When a tenant grows crops on another man's land, do they sustenance farm or do you think the farming was specialized to grow one crop and then sell it at market?

Sustenance Farming

Historical Overview, 12.2.3 The Economic Effect of War on Athenian Women - The men worked the farm while the women ran the household.

Historical Overview, 6.8 The Contributions of the Helots - Spartan men were allotted a section of land to be used to sustain the family.

Aristophanes, *Acharnians* lines 33-36 - Dicaeopolis claims to hate the city and wants to return to his farm. In the city you must buy all that you need. Dicaeopolis says that he grows all that he needs on his farm, "I grow my own and need no Mister Buy."

Aristotle, *Athenian Constitution* 2.2 - Sixth-part-tenants and their children, named for the rent they paid to a rich man for use of his land, were suggest to arrest if they did not pay their rent.

Aristotle, *Politics* 1256a-1256b - Aristotle tells us that, ". . . the largest class of men live from the land and the fruits of cultivation." These men, "the herdsman, the brigand, the fisherman, the hunter, the husband-man," do not barter or trade for what they need.

Hesiod, *Works and Days* - et. al.

Herodotus, *History*, 4.17.2 - The Callippidae and the Alazones plant and eat grain, onions, garlic, lentils and millet.



Specialization

Aristotle, *Politics* 1258b - Aristotle says that in order to earn a living and wealth from breeding stock, horses, cattle or sheep, a farmer “must be an expert as to which of these animals are most profitable compared with one another, and also as to what breeds are most profitable on what sorts of land, since different breeds flourish in different places.” On the subject of earning wealth from agriculture, a farmer can grow corn or some kind of fruit. Bee-keeping is also profitable and well as raising fish and fowl.

Demosthenes, *Speech 42: Against Phaenippus* 42.7, 42.20 - “Phaenippus has also this very considerable source of revenue: six asses carry off wood the whole year through, and he receives more than twelve drachmae a day.” Phaenippus sells his barley for eighteen drachmae and his wine for twelve drachmae.

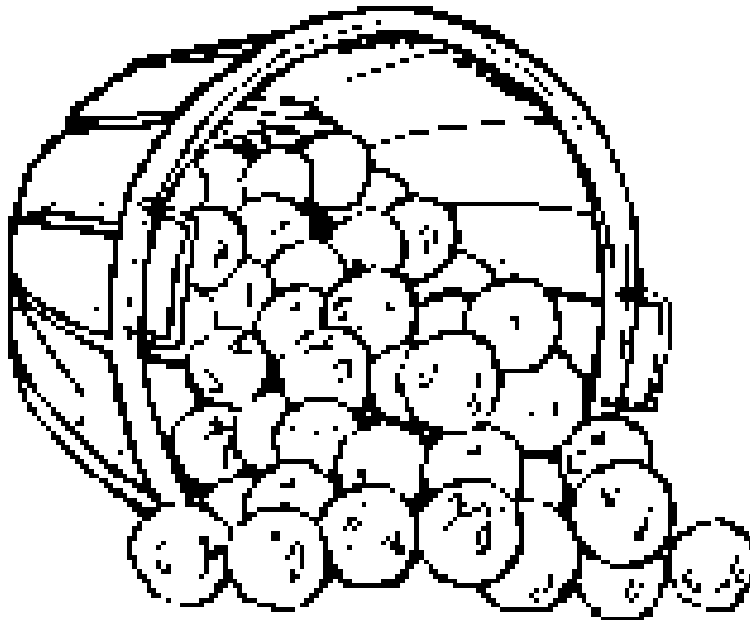
Herodotus’ *History*, 4.17.3 - Scythian farmers, who plant grain to sell;

Herodotus’ *History*, 5.77.2 - The Athenians left four thousand tenant farmers on the lands of the horse-breeders after defeating the Chalcidians in battle.

Homer, *Odyssey*, Book 2.408 - Odysseus’s estate produces wine that Homer talks of being in its eleventh year.

Plutarch’s *Aristides* 27.1 - vineyard as part of an estate.

London E224 - Herakles in the Garden of the Hesperides, a garden of fruit trees.



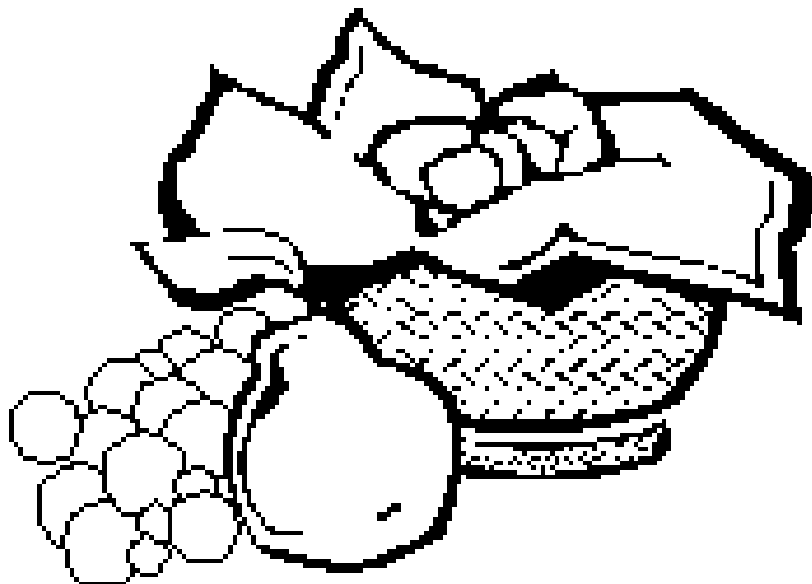
Agricultural Areas: What grew where?

A look at the regions of Greece and their agricultural makeup can give students insight into the diets of the people in a specific region, into their regional economy and to the importance of a region as a food supplier. As farming became more specialized and trading prevailed regions grew the crops best suited to their climate for export out of the region.

Investigations of the Encyclopedia entries for each region (reached through the Encyclopedia Subject Index), Primary Text entries and the appearance of crops on coins will yield lot of information. From the facts students find in these sources they can then fill in the map on the next page with labels and colors for the appearance of different crops in different regions. Herodotus' *History* discussed many different regions and their climate, agriculture and diets and Plutarch's *Solon* discusses the land surrounding Athens and it use. These are good places to begin.

1. How did Greek farmers deal with a lack of water in some arid regions?
2. What crops are grown in the northern part of Greece? In the southern part?
3. What effect does a lack of food and water have on the population of a region?
4. How did the diets of northern Greeks differ from the diets of southern Greeks?

Map the crops grown in different areas of Greece on the map on the next page.





The Gods of Agriculture

To which god or goddess should a farmer pray to insure the success of his crops? Students can go about finding the answer to this question in a couple of ways.

1. Look for “grain” on vases and coins, who appears with the grain? Use the Browser to begin. Then look for references to grain in Primary Texts.

Grain

Dewing 380 - shows grain on one side and the veiled head of Demeter on the other.

Malibu 81.AE.213 - Demeter holds grain ears all along her arm.

Harvard 1959.187 - Demeter hands wheat to Triptolemus.

London E 140 - Demeter, Triptolemos, Persephone, Eumolpos and Eleusis are in a scene together where Triptolemos is about to bring wheat to man kind. He holds grain in his hand.

Dewing 1932 - On the obverse of this coin, Demeter wears a wreath of grain.

Apollodorus 1.5.2, Note 3.14.7.

Herodotus, 1.193.3.

Hesiod, *Theogony* 970.

Hesiod, *Works and Days* 31, 300, 465, 599.

Homer, *Iliad* 5.500.

Homer, *Odyssey* 5.125.

2. Look at the myths of Demeter, Persephone and Triptolemus. Use the Browser, the Encyclopedia or English Index to begin.

Demeter

Dewing 1932 - On the obverse of this coin, Demeter wears a wreath of grain.

Harvard 1959.187 - Demeter hands wheat to Triptolemus.

London E 140 - Demeter, Triptolemos, Persephone, Eumolpos and Eleusis are in a scene together where Triptolemos is about to bring wheat to man kind. He holds grain in his hand.

Apollodorus vol. 1.35 - Demeter searches for Persephone.

Apollodorus, 1.5.2 - Demeter gives wheat and a winged chariot to Triptolemus.

Homeric Hymn 2: To Demeter, et. al. - This is the original story of the loss of Persephone and the resulting grief of Demeter.

Site Description, Selinus - Farmer prayed to Zeus Meilichios and chthonic Demeter at sowing time.

Triptolemus

Harvard 1959.187 - Demeter hands wheat to Triptolemus.

London E 140 - Demeter, Triptolemos, Persephone, Eumolpos and Eleusis are in a scene together where Triptolemos is about to bring wheat to man kind. He holds grain in his hand.

Apollodorus, 1.5.2 - Triptolemus is the elder son of Metanira and Celeus who receives a dragondrawn chariot and wheat from Demeter. Triptolemus sows the wheat and teaches others to do so.



Homeric Hymn 2: To Demeter, et. al. - This is the original story of the loss of Persephone and the resulting grief of Demeter. In this story, Demeter meets Triptolemus.

Pausanias 1.14.1.

Pausanias 2.14.3.

Persephone

BCMA 1919.58.1, Dewing 1476, 1478, 2245, 971.

Parthenon, East Pediment Demeter with Kore.

Eleusis, Kallichoron Well.

Apollodorus 1.5.1 - Persephone is carried off by Pluto who has fallen in love with her.

Apollodorus Note 1.5.1.a.

Apollodorus 1.5.3 - Because she has eaten part of a pomegranate, Persephone is compelled to remain a third of the year with Pluto and the rest with the gods.

Pausanias 1.14.1.

Pausanias 1.39.1.

Pausanias 9.25.5.

Pausanias 9.31.9.

3. Look at references to grain in Primary Text. Also use the English-Greek Word Search to find the Greek words that have the word "grain" in their definitions.

σίτος - corn, grain, comprehending both wheat (πυρός) and barley (κριθή).

Hesiod, *Works & Days* 146 σίτον - used to mean bread.

Hesiod, *Works & Days* 604 σίτον - used to mean a man's food.

κάκος - a grain, seed.

Apollodorus vol. 1.5.3 - used to mean the seed.

όλυρα - a kind of grain, spelt or rye.

Herodotus, 2.36.2 όλυρέων - used to mean a coarse grain.

Herodotus, 2.77.4 όλυρέων - used to mean a coarse grain.

ζειά - grain, spelt, a coarse wheat, used as fodder for horses.

Homer, *Odyssey* 4.41 ζειάς - used to mean spelt for horse food.

Homer, *Odyssey* 4.604 ζειάι - used to describe the spelt grown on Ithaca.

This is a good opportunity to divide students into groups and have them go at the problem in three or more different ways. They may be looking to answer a single question but each group will turn up results that will help the others understand the significance of grain to ancient Greek society.



Farming by Nature's Clock

How does a farmer know when to perform certain tasks such as plowing, planting and harvesting? Students should read Hesiod's *Works and Days* to find the answer to this and other questions. A chart like the one below can be constructed from the information found in the text. Alternatively, the book *Empires of time : calendars, clocks, and cultures*, by Anthony F. Aveni, New York : Basic Books, 1989, includes a chart similar to the one below. Students can compare the Ancient Greek cycle of farming to the modern cycles. Line numbers for Hesiod's *Works & Days* are included with each occurrence for reference.

Activity	Jan.	Feb.	March	April/ May	June	July	Aug	Sept	Oct	Nov.	Dec.
Cereals ☼		Make clothing (563)	Plow fallow (462)	Harvest (383, 573)	Build barns (504)	Relax (587)		Start plowing (384, 615)	Start plowing (384)	Late plowing (479)	Stay busy (504)
Grapes			Prune & dig vines (571-72)		Winnow & Store (598-600)		Harvest Press grapes (610) (613)				
Animals 🐄 🐷 🐓					Bring in hay & fodder (606)						Keep oxen indoors (462)
Birds 🐦			Swallows appear (568)	Cuckoo begins to sing (487)				Cranes migrates (448)			
Plants 🌱				Figs leaves grow (563)		Artichoke flowers (581)		Drop leaves (421)			



Farming Actions

A number of vase painting and text depict and describe how people planted and harvested food stuffs. The depictions and description are not limited to the farming of regular food but also items used in ceremonies and the creation of tools for farming. Below is a list of vase and texts that depict and describe farming actions. Students can draw conclusion on the amount of labor that went into the production of food in ancient Greece.

London E 241 - A woman, on a ladder, gathers incense used in religious ceremonies and drops it into a bowl.

London B 507 - On this vase, men work at a forge to create metal tools and weapons.

Boston 01.8024 - A boy fishes using two nets.

Würzburg L 265 - Silens perform the tasks of wine making from picking the grapes to stomping on the fruit to make the wine.

London B 226 - Men harvest olives by sending one man up the olive tree with a stick to knock the fruit down. The others pick the olives up from the ground and put them into baskets.

London D 6 - Women and girls pick apples.

Mississippi 1977.3.74 - A boy in a tree picks olives at a harvest festival.

Munich 1702A - A woman climbs a tree picks fruit while two other women watch. One woman holds fruit in her skirt while another woman carries a basket on her head.

Ann Arbor 70.1.1 - A man crushes grapes for wine in a pithos.

Historical Overview, 4.3 Agricultural Resurgence - This passage talks about the use of farming implements.

Aristotle, *Athenian Constitution* 16.6 - Pisistratus comes across a farmer digging rocks.

Herodotus, *History* 3.111.1-3 - Herodotus describes how to grow cinnamon.

Hesiod, *Shield of Herakles* lines 287-295 - Hesiod describes the process of plowing, harvesting and threshing.

Hesiod, *Works and Days*, line 430 - Hesiod talks of the best wood to use when building a plow.

Homer, *Iliad* Book 5.500 - To separate the chaff, the grain is laid out so that Demeter's winds remove the chaff.

Homer, *Odyssey*, Book 2.408 - Odysseus's estate produces wine that Homer talks of being in its eleventh year.

Xenophon, *Economics* 7.36 - It is a woman's job to use dried food to make food for her family.

Xenophon, *Economics* 11.16 - When a man returns to his farm he may find "planting, clearing, sowing or harvesting in progress."



The Tools of Farming

What kind of help (labor, tools, animals, etc.) does a farmer need and is available?

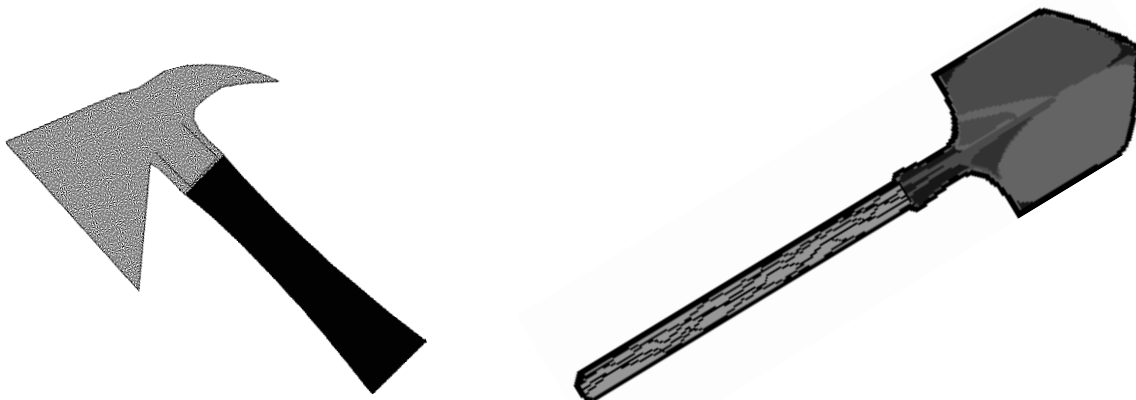
Students should investigate the use of hired hands, a plough (English spelling only), a cart, mortar and a sickle by farmers. One of the best places to begin this investigation is in Hesiod's *Works & Days* since it outlines the duties of a farmer. Also in Book 14.1 of the *Odyssey*, Homer describes the use of a slave, the swineherd, and his faithfulness to his master.

For archaeological evidence to the use of tools and hired labor students should begin by investigating the Keyword topics of the Object Keyword Search. Below are a few examples of the vases and coins that depict farming, tools and laborers.

Ax/double ax	Louvre G 416 - A woman holds an axe; Dewing 2224 & 2226.
Adze (Skeparnon)	London E 23 - A carpenter uses a adze on a beam of wood.
Mallet/pick	Harvard 1960.236, Satyrs with mallets. Munich 2344 - Athletes use picks for loosening the earth for the long jump that may be like the ones used in farming.
Staff	London B226 - olive harvesting.
Hammer	Berlin F 2294 - Men at a forge hold and lean on hammers.
Rope	Boston 99.538, Herakles holding a rope.
Plough	BCMA 1919.58.19 coin with plow on it.
Farming implements	Historical Overview, 4.3 Agricultural Resurgence.
Drill	Boston 13.200 - A carpenter uses a drill.
Ladder	London E 241 - A woman, on a ladder, gathers incense used in religious ceremonies and drops it into a bowl.
Sickles	Louvre G 416 - A woman holds a sickle; Hesiod, <i>Shield of Herakles</i> lines 290 - Men use these to cut down stalks of corn.

One Step Further

Students may also want to think of a farmer's clothing as tools used for protection, e.g. Odysseus' father Laertes wears the cloth of a farmer in Book 24.225 of the *Odyssey*. Hesiod talks of the best wood to use when building a plow in his *Works and Days*, line 430.



Olives

Without knowing much about the ancient Greeks it may be hard to understand why the olive was such a staple food to their everyday lives. Students may not be aware that the Greeks washed with olive oil, cooked with it and covered themselves in it before exercising. Olives were the all-purpose food for the Greeks and the reasons for their importance in farming, religion and literature can be discerned from the primary source information in *Perseus*.

After some investigating students will understand the importance of the olive to the ancient Greeks. Below are some of the olive citations in vases, coins and text in *Perseus*.

Primary Text

Aeschylus, *Persians*, line 616 - description of an olive.

Apollodorus vol. 2.79 and 2.81, Athena plants an olive tree.

Aristotle, *Athenian Constitution* 60.1-3 - Aristotle explains the tradition of producing, harvesting and awarding the sacred olive oil of Athens used in the Panathenaic Festival.

Demosthenes, *Speech 43: Against Macartatus* 43.69 - More than a thousand olive trees were wrongly dug up and rooted out. These trees produced a large quantity of olive oil. Macartatus uprooted the trees and sold them for huge sums of money.

Herodotus, *History* 5.82.3 - Herodotus tells of the planting of the first olive trees outside of Athens.

Encyclopedia

Laconia possesses arable plains suitable for olives.

Megarid is the sight of olive groves.

Messenia combines a high rainfall with a southerly latitude, the region is rich in olives, figs, vines and pasture land.

Coins

Dewing 1594 and numerous other coins with olive sprigs on them.

Vases

Yale 1913.161, An olive tree stands behind Athena and Herakles.

Baltimore, Hopkins AIA B11, Example of olive oil used in exercising.

Malibu 86.AE.298, An athlete pours olive oil.

One Step Further

Students may want to focus on the association of the olive with Athena. Athena appears on many works of art accompanied by the olive. The myths associated with the olive and Athena will give students insight into the deeply seeded agricultural mind set of the ancient Greeks, something lost on most people living in industrialized countries today.



Visions of Food

Once they had harvested their food, what did the Greeks' prepared foods look like? Was prepared in the same manner and recipes as we have today? Students can get a glimpse of what the Greeks ate, how they prepared their foods and what it looked like by investigating food in art and texts. Below are a few examples of prepared foods and foods used in ancient Greek recipes.

Dewing 678 - A celery leaf.

Dewing 2468 - A pomegranate.

Munich 2301 - Herakles prepares for a meal of meat stripes and cake.

Berlin F 1915 - A man prepares to cut up a tunny.

Boston 01.8024 - A boy fishes using two nets.

Würzburg L 265 - Silens perform the tasks of wine making from picking the grapes to stomping on the fruit to make the wine.

London B 226 - Men harvest olives by sending one man up the olive tree with a stick to knock the fruit down. The others pick the olives up from the ground and put them into baskets.

London D 6 - Women and girls pick apples.

Mississippi 1977.3.74 - A boy in a tree picks olives at a harvest festival.

Munich 1702A - A woman climbs a tree picks fruit while two other women watch. One woman holds fruit in her skirt while another woman carries a basket on her head.

Harvard 1972.40 - When Achilles meets with Priam to ransom the body of Hektor, meat is served.

Tampa 86.73 - A boy carries a tray of food that includes a *mesomphalos* loaf.

Ancient Greek Recipes

Archestratus the Life of Luxury, translated by John Wilkins and Shaun Hill. A cookbook of ancient Greek recipes.



Paper Topics and Investigative Projects

1. How did farmers and communities store grain? Find textual and archaeological evidence to support your answer.
2. What animals were domesticated as farm animals and livestock? Who owned livestock?
3. Certain foods had to be used when performing sacrificial rites. Which ones and why?
4. Take a closer look at the foods eaten by the ancient Greeks. Use the Object Keyword Search to begin your visual investigation.
5. How did the idea of 'ploughing' become a Greek metaphor for procreation? Look at the use of the following words in the Primary Text: plough(s), ploughed, ploughers, ploughing, ploughland(s), ploughman/men, ploughshare. Sight specific examples to support your answer.
6. In times of war soldiers claim to have destroyed olive groves, grain fields and fruit orchards. Find evidence of such destruction. Could an army destroy these crops? Did they have the time and resources? Why might they choose to destroy them? Refer to Victor Davis Hanson's *Western Way of War* for insight into this question.



Path Suggestions

A Path is a sequence of locations in *Perseus* stored on Path Cards by the creator. The Path card shows all locations saved as a Path in sequential order from left to right. Each Path location is represented by a Link icon in which that location is found. A Path allows the Path user to learn about a topic through a series of stops, each one building on the previous one. Paths can be of great benefit to a new *Perseus* user introducing her/him to what *Perseus* has to offer.

Path assembly is easy when you work from the Greek Farming Practices *Knowledge Builder™*. Use the *Knowledge Builder™* for Greek Farming Practices to make a general Path. Include a Path step for each citation from the Greek Farming Practices *Knowledge Builder™* mentioned in the directions and then add your Path Notes pointing out what is relevant to what you are reading or discussing in class. Path directions are available as a *Knowledge Builder™*, see the last page of this *Teacher's Companion™* for details.

Use the Assignments on the previous pages to build Paths associated with word analysis, art and archaeology and Primary Text evaluation. This is an excellent way to get students to think about a subject and to bring their own experiences and perceptions into their work.

In order to use the information below you must know how to create a Path. The Knowledge Builder™ "How to Create a Path" is an easy way to learn how and is available through Classical Technology Systems, Inc. The "About this Path" information should be included on the Path card. Then you should use the information next to "**Step X:**" to find each Path location and add it to your Path. Remember to include notes and to open images, that should appear with your Path step, when requested.

Step 1: Grain

Link: Coin Catalog card, Dewing 380.

Notes: This coin illustrates grain on one side and the goddess of agriculture, Demeter, on the other. Both grain and Demeter were the main stays of Greek agricultural life. One provided people and their animals with food. The other brought the seasons and the good harvests.

Special Instructions: Before adding this step to your Path, choose either the obverse or reverse of this coin so that the image appears on your screen. Now add this step to your Path so that the obverse or reverse image appears on the screen.

Step 2: Handbook

Link: Primary Text, Hesiod's *Works and Days*, line 1.

Notes: The Greek author, Hesiod, composed his *Works and Days* as a farming handbook for his brother. This work offers us great insight into ancient Greek agricultural life as well as the social beliefs of the average farmer.

Step 3: Food

Link: Greek-English Lexicon, definition for the word, "sitos".

Notes: A farmer's goal was the production of food. Here is the definition for a Greek word commonly applied to food in general.



Special Instructions: If you are unable to type Greek characters into the Greek-English Lexicon, use the English-Greek Word Search. From the English-Greek Word Search, type “food” onto the line next to “Look Up” and click once on “Look Up.” Find “**ἄροτρον**” from the list, highlight it and choose “Greek-English Lexicon” from the mēnu under Related Tools.

Step 4: Plow

Link: Coin Catalog card, BCMA 1919.58.19.

Notes: The use of a plow was essential to any farmer plowing his fields in preparation for planting. The farmer hitched oxen to his plow for tilling and plowed in April or May.

Special Instructions: Before adding this step to your Path, open the image “BCMA 1919.58.19 reverse” under Views so that this view appears on the screen when the user reaches this step.

Step 5: Olive

Link: Vase Catalog card, London B226.

Notes: The vase illustrates the method used to harvest olives. Take a close look at the instruments used to knock the olives out of the tree.

Special Instructions: Before adding this step to your Path, open the image “Side A: olive harvesting” under Views so that this view appears on the screen when the user reaches this step.

Step 6: Described

Link: Primary Text, Aeschylus’ *Persians*, line 617.

Notes: In this passage Aeschylus describes an olive. It wasn’t that his audience did not know what an olive was but he meant to sing its praise.

Special Instructions: Highlight the words “Here too is the fragrant fruit of the pale-green olive that lives the entirety of its life in luxuriant foliage; and garlanded flowers, produce of the bounteous earth” before adding this step to your Path.

Step 7: On a coin

Link: Coin Catalog card, Dewing 1594.

Notes: Olives, like grain, were and still are an important Greek crop. Olive oil was used for bathing, cooking and as a coating before exercise. The olive’s importance merits its appearance on this and many other coins. Look at other coins on which olives appear. What do these coins have in common?

Special Instructions: Before adding this step to your Path, open the image “Dewing 1594: reverse” under Views so that this view appears on the screen when the user reaches this step.

Step 8: Other food

Link: Primary Text, Herodotus 4.17.2.

Notes: Not all Greeks grew the same set of crops. Often the climate, soil conditions and water availability dictated which crops could be grown where. Herodotus tells us that the Callippidae and the Alazones planted and ate grain, onions, garlic, lentils and millet.

Special Instructions: Before adding this step to your Path, highlight the words “an-



other tribe called Alazones . . . plant and eat grain, onions, garlic, lentils, and millet.”

Step 9: To sell

Link: Primary Text, Herodotus 4.17.3.

Notes: The Callippidae and the Alazones lived off of what they could grow. The Scythians farmed like them and were able to specialize in growing grain which they then sold at markets.

Special Instructions: Before adding this step to your Path, highlight the words “Scythian farmers, who plant grain not to eat but to sell.”

Step 10: Demeter

Link: Vase Catalog card, Harvard 1959.187.

Notes: Demeter and her follower, Triptolemus, sprinkles grain on to the ground. Look closely at the views for this vase. Notice how well you can see the grain. Does this grain look like other images of grain you have seen in *Perseus*?

Please continue this Path with steps that apply to your classroom studies.



Appendix A

These exercises may be given as in-class or out-of-class assignments. The exercises will take between thirty (30) minutes and an hour to complete depending on the student's computer skills. An answer key follows each practice exercise. Make sure that you give the students a thorough introduction to *Perseus* before having them attempt either exercise.

Exercise I

You will be asked to answer basic questions the answer to which you will find in *Perseus* without too much searching.

1. Name two ways to get to the Site Index.
 1. _____
 2. _____
2. Locate the three (3) main buildings at the site of Eleusis. (Hint: look at the Large site plan and the site description.)
 1. _____
 2. _____
 3. _____
3. Find one vase, one sculpture and one coin on which one of the following heroes appears: Perseus or Ajax. Fill in the information as requested below.

Vase

Museum Number (i.e. London 1983.01.176) _____
Period _____
Excavations Date _____

Sculpture

Museum Number _____
Date _____
Material _____

Coin

Museum Number _____
Denomination _____
Metal _____

4. Find the Encyclopedia entry for "Theater" and list five of the terms from the "See Also" column.
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____



5. Use the English Word Search to find the word “god” in the Historical Overview (Overview). List 5 of the citations.

1. _____
2. _____
3. _____
4. _____
5. _____



Key to Exercise I

- a) From the *Perseus* Gateway, go to the Art & Archaeology table of contents and choose a site index.
b) Select "Sites" from the pop-up menu under Links at the top of the screen.
1. Kallichoron or sacred well.
2. The cave of Pluto adjacent to a triangular court.
3. The Telesterion of Demeter.
3. Look at the follow vases, coins and sculpture for the answer to each question.

Perseus

Vases - Baltimore, Hopkins AIA B5, London B471, Malibu 86.AE.146.

Coins - BCMA 1923.119.9, Dewing 1213.

Sculpture - Athens Br. 13396.

Ajax

Vases - Florence 4209, London B193, Malibu 86.AE.286, Munich 1470.

Coins - Dewing 1476, Dewing 1478.

Sculpture - Aegina E 8, Aegina W 2, Aegina W 4, Aegina W 9, Aegina West Pediment 2, Aegina W 10, Aegina W 4, Aegina W 9.

4. Five of the following terms: Cavea, Cunei, Diazomata, Episkenion, Hyposkenion, Kerkis, Logeion, Orchestra, Theatron, Parodos, Paraskenion, Prohedria, Proskenion, Skene, Theologeion, Thymele, Thyromata.
5. Five of the following citations:
5.1 The Characteristics of the City State (*Polis*), **5.12** The Oracle at Delphi and Colonization, **5.25** Public Slaves, **6.18** Tyrants and Popular Support, **6.26** Solon and Democracy, **8.2.1** The Resources of Persia, **8.2.2** Persian Religion, **8.3.1** Croesus of Lydia and the Ionian Greeks, **9.1.4** Finances of the Alliance (Delian League), **9.4.7** The Significance of the Parthenon Frieze, **10.1** The Outlines of Greek Religion in the Classical Period, **10.1.2** The Gods and Human Behavior, **10.1.5.1** Large Animal Sacrifice, **10.1.8** Belief and Ritual, **10.2** The Development of Athenian Tragedy, **10.2.2** The Performance of Tragedy, **10.3.2** Private Sculptural Commissions, **12.1.2.1** Immediate Causes of War, **15.6** The Platonic Demiurge, **15.14** Aristotle of Slaves and Women, **16.11** Alexander in Egypt, **16.16** Alexander's Last Plans, **16.18** The Death of Alexander.



Task Oriented Exercise

Exercise II

1. Look closely at the vases Harvard 1960.312 and London B193. Read the description for each vase. List the similarities between the two vases and the differences.

Differences

1. _____
2. _____
3. _____
4. _____
5. _____

Similarities

1. _____
2. _____
3. _____
4. _____

2. Using the English Word Search, find five instances of the word "friend" in the works of Sophocles' play, *Electra*.

1. _____
2. _____
3. _____
4. _____
5. _____

3. Plot the following sites on the Atlas map and answer the questions below.

Athens, Sparta, Pylos, Knossos, Thebes, Ithaka, Mycenae, Troy

1. Which site is closest to Athens?
2. Which site(s) is on an island?
3. What line of latitude is Athens on? (Hint: Look under the word "Atlas" at the top of the screen for help.)
4. Which direction would you travel if you went from Sparta to Troy?
5. Which one of the sites plotted is closest to Italy?

4. From the site catalog on Pylos, find out in which building the Linear B tablets were found.

1. _____

5. Find the Encyclopedia entry for Crocodile's Town. Go to the Primary Text citation "Hdt. 2.148" and read from section 1 to section 7. Summarize Herodotus' description of the Crocodile's town Labyrinth.



Group or Research Project

This assignment can be given as a directed exercise to demonstrate to students how they might go about researching a topic. The order of execution given below is only one way to reach a given goal. Since everyone uses *Perseus* differently it should be made clear that this is not the only way to research the appearance of animals on shields.

Order of execution

1. Browser Search - under 'Weapons' find 'Shield.' Look at images and descriptions of animals that appear on vases, sculpture and coins.

Example Vases

Baltimore, Hopkins AIA B8, Baltimore, Hopkins BMA 60.55.2, Boston 00.330, Boston 13.186, Boston 63.473, Boston 97.368, Boston 98.916, Florence 4209, Harvard 1960.312, London B161, London B193, London B209, London B210, London B329, Malibu 77.AE.11, Malibu 86.AE.114, Munich 2620, Munich 2688, Worcester 1966.63.

2. Look at the Encyclopedia entries for animals on shields. The Encyclopedia entries will point out stories about the shields, who possessed them and why a certain animal appears on a shield.

Encyclopedia

Shield, Cock, Lion, Dragon, Gorgon, Crab and more.

3. Look at the Primary Text information about the shields on which animals appear, searching for explanation of the use of animals on shields and their representation.

Primary Text

Apollod. 1.149 the invention of shields by Acrisius and Proetus.

Design your own shield

Symbols on Greek hoplite shields may be likened to a coat of arms. Students should choose their own animal or being and draw it on a shield outline. Shield examples can be found in the list that appears in the previous assignment.



**For more free materials from
AbleMedia, visit the
Classics Technology Center
<http://ablemedia.com/ctcweb>**

50 Clark Street • Medford • MA 02155-4474
(781) 396-7582 • FAX (781) 393-5643
e-mail: ctcweb@ablemedia.com
<http://ablemedia.com/>

