



Paper, Pens, & Prose: Discovering Early Manuscripts

THE DEVELOPMENT OF WRITING AND BOOKS

PART II



Grades 4–8
History and Geography

The Huntington Library, Art Collections, and Botanical Gardens

I. Introduction

The history of writing—scripts, scribes and printers and their implements, scrolls and books—has fascinated scholars for centuries. Languages and the systems used to record them may disappear, but the knowledge they recorded exerts an irresistible draw as a window into a culture long gone. How was the history of these earlier civilizations recorded and how can we understand that information today?

II. Objective

- ◆ Students will participate in individual and small group activities leading them to draw conclusions about the development of writing and printing.

III. Standards Addressed

History-Social Science Standards

6.2 Students analyze . . . early civilizations . . . in terms of:

- 9 the evolution of language and its written forms.

7.8 Students analyze the origins, accomplishments and geographic diffusion of the Renaissance, in terms of:

- 4 the growth and effect of ways of disseminating information (e.g., the ability to manufacture paper, translation of the Bible into the vernacular, printing presses).

Historical Interpretation Skills

Grades 4/5-1

Students identify and interpret the multiple causes and effects of historical events.

Grades 6/7-3

Students explain the sources of historical continuity and how the combination of ideas and events explains the emergence of new patterns.

IV. Background

We can hardly conceive of a world without recorded words so imagine how thrilling it must have been for early people to anticipate the changes that would flow from the introduction of writing and, centuries later, of printing. Both technologies were, in fact, often seen as gifts of the gods. The Egyptians thought their hieroglyphs, meaning “holy engravings,” had come from the god Thoth and embodied sacred meaning. When Hatchepsut’s son was finally freed from imprisonment upon his mother’s death, one of his first acts after becoming pharaoh was to scratch her name from the walls, ensuring that her soul would never rest. The Egyptian scribe who wrote, “It is writing that makes [a man] remembered,” knew that he would speak to the future “in his own voice” (Claiborne, 20).

Muslim tradition holds that Allah’s first creation was the reed pen, and Arabic script is revered because it records “the word of God.” The Mayas also thought writing holy, a gift of the creator divinity Itzamna. Much later, William Blake, in his poem “Jerusalem,” claimed God had given writing to man. Printing too had a sacred quality; King Louis XII of France believed that the art and science of printing seemed an invention more divine than human. How did humans begin to record spoken language, how did those methods change over time, and what changes lie ahead for the languages of the world?

V. Materials needed

There are many sources for the activities and content mentioned in the lessons; references are given for each topic—see the Bibliography.

VI. Preparation

Teachers should assess the questions for suitability to the level of their classes, although all can be dealt with by fourth through seventh graders with sufficient teacher direction.

VII. Lesson Activities

Books and Their Production

1. When we hear the word “book” today, a common image comes to mind, but the form of the book has changed over the years. It has included the clay tablets of Mesopotamia, the papyrus rolls of Ancient Egypt, and the modern codex form of individual pages bound together.

- a. Have your students make a simple replica of the early book types with a slab of clay and sheets of thin paper such as onionskin (or papyrus itself) glued together to create a long strip, then rolled up for a few days to create a scroll. Have a student use a pencil as a stylus or a chopstick with the end carved into a wedge shape to mark on the clay, and have another student use a brush pen on the papyrus roll, putting the same sentence on each. Have the class chart the features that would have caused the Egyptians to use papyrus instead of clay tablets.

[Papyrus was a locally available material, papyrus rolls are lighter than clay, they can be corrected at a later date which clay cannot after it dries. . . .]

- b. Now chart the advantages of modern books. Ask your papyrus scribe what the problems and limitations were.

[It is hard to keep the roll open; the roll must be kept open while the ink dries, is hard to carry without crushing, can only be used on one side, is hard to store on a shelf, is slow because only one person at a time can work on it, is hard to find information on, is harder to close than a book. . . .]

- c. Why did papyrus fall out of favor? In the second century B.C., Egypt refused to supply Pergamon (Western Turkey) with papyrus, perhaps to prevent competition with its Alexandria library. The replacement was leather, carefully prepared to provide a satisfactory writing surface in the form of parchment (meaning “paper from Pergamon”). Not only was this a long-lasting material, but it could also be assembled into the codex or book form; papyrus was too fragile to be constantly bent along one side. (If you have a piece of papyrus, have a student repeatedly bend it at one point. How many times could you “turn the page” of a papyrus book before it broke?) Nonetheless, the preparation of parchment was a tedious process. (See the Jean and Oliver books in the Bibliography.)
- d. A change in writing material requires a change in writing implements; with the change from clay to papyrus, a brush replaced the stylus. Furthermore, the cylinder seals that were often used to “sign” clay tablets (Few Mesopotamians had learned the complex cuneiform symbols.) were useless on papyrus. Have your students make a cylinder seal by letting them carve

symbols around the outside of clay tubes which should then be baked dry. Roll these on damp clay. What kind of seal would be needed on a roll of papyrus? Have the students make stamp seals with a design on the end to be dipped in ink before being pressed onto a papyrus roll or piece of paper.

- e. Paper can be marked with brushes, but pens provide more control. Have the students make a pen with a straw or feather, cut first diagonally, the tip then slit, and the sides cut away. (See the Jean and Oliver books.) Ink can be made from many carbon-based materials (charcoal, lampblack...), from treebark, and from an oak gall and iron mixture (not practical to make in class), but if you want to use a natural material the students particularly enjoy, try using squid ink.

Reading and Literacy

2. In early times, most reading was done aloud. Egyptian scribes read aloud the beginning of the tales they were recording to attract purchasers. Romans also saw reading as a public activity. The slower pace may have made it possible for the reader to interpret writing that we find difficult.

- a. Write the following line on a card and ask one of your best readers to read it aloud as soon as you hand it to him or her.

ITSNOTEASYTOREADROMANWRITING.

What makes the line difficult to read?

[It lacks punctuation, spaces, and lower case letters (has no shape variation).]

- b. Following the barbarian attacks of the early Middle Ages, increasing wealth and peace allowed more people to learn to read. Books such as family Bibles became a sign of status. Illuminated *Books of Hours* could be utilized even by illiterates—the prayers had been committed to memory, the beautiful pictures allowed everyone to keep up with the service, and the symbolic meanings of parts of the illustrations enriched comprehension. The Office of the Dead section of some *Books of Hours* contain pictures of skeletons (Phaidon Press). This is reminiscent of the theme of the Latin American Day of the Dead celebrations. What common significance do these unusual forms of decoration have?

[Death is an inevitable part of life; get prepared.]

As your students look at illustrated books on exhibit at the Huntington or reproduced elsewhere, have them look for the symbols associated with the evangelists—John (eagle), Mark (lion), Matthew (angel), and Luke (ox), as well as for identifiable flowers. These flowers may have been selected for their associations, which can be checked in *Paint Your Own Illuminated Letters*. The students can design a card for a family member, using “meaningful” flowers.

- c. By the Renaissance, reading and book ownership were seen as social accomplishments, signs of personal fulfillment (McGrath, 7). Discuss how this illustrates the new influence of humanism.

[Submission of self to the dictates of the Church had given way to a desire for self-improvement through study and reflection, an admiration for the well-rounded “Renaissance man.”]

- d. It is estimated that before 1800, few, if any, societies had a literacy rate higher than 20%. By 1840, U.S. literacy had risen to about 40% (Pei, 283). Have the students use almanacs or other reference sources to determine the literacy rates of various nations around the world today. Now that books are readily available, why would some nations continue to have relatively low literacy rates? How do such factors as Per Capita GDP and Population Annual Rise affect literacy?

[Lack of wealth limits the ability to build schools and pay teachers, a high percentage of young people means many citizens needing education and a limited number of workers to fund that education. . . .]

The Book Trade

3. We may think of books first for their content, the knowledge they can provide for us, but books and the materials utilized in making them have always been significant trade goods as well. In Mesopotamia, pots full of clay were sold to scribes. Bales of true paper made from hemp, rags, and old fishnet were shipped from China—the source of its discovery—along the Silk Road to the Middle East, and then on to Europe, which lacked a papermill of its own until about 1100. By the time illuminated Books of Hours were being produced with regularity in Europe (ca. 1300), trade in books and book-making materials was extensive. Have the students label a map with the following products and their sources, or, better yet, illustrate the web of trade by posting a copy of an illuminated page on a map, labelling the following points of origin, and having the students use to yarn to connect the parts of the page to their points of origin. (Note that there were often multiple types and sources for a given color. I have listed ones that are not local to Western Europe.)

Pigments—most of these had to be finely ground and mixed with wetting agents like:

- gum arabic from tropical Africa (though glair from local eggs was also used)
- gold—West Africa
- red—kermes (a scale insect) from Asia Minor
- ultramarine blue—lapis lazuli from the Hindu Kush (Badakshan in Afghanistan); this was named ultramarine for its origin **beyond** the **Caspian** Sea and was highly valued for use in the Virgin’s cloak.

Ink—oak apples from Aleppo in Syria (mixed with local lead)

parchment—goat skin from Morocco

4. In addition to the workers who prepared the materials (from those who raised the animals for parchment to those who prepared the parchment for use and those who imported and ground the pigments), the production of an illuminated manuscript required a number of different workers—the parchment seller, scribe, pen-flourisher, illuminator, corrector, and binder. Soon whole neighborhoods were filled with members of the book trade and their families, living “above the store” and often helping with the work. In Paris, this area was on either side of the Petit Pont which connected the Ile de la Cite to St. Severin. Tell the students that such single craft neighborhoods used to be common. Ask them to look around their neighborhoods to see if there is a group of similar businesses.

[Sepulveda Boulevard in West Los Angeles, for example, has several animal hospitals in a few blocks. There are many car sales or car repair areas throughout Southern California.]

This pattern was to last until the next great boost to the book economy—printing—when all parts of the job could be done in a single shop, and the workers did not need to live nearby.

Printing and Type




5. Show students the quote on page 7. William Caxton, the first English printer, said this of Gutenberg's achievement in perfecting printing with moveable type. Ask your students to “translate” it into modern English and to note the long ‘s,’ which was in use as recently as the late eighteenth century. They should also comment on the Gothic type face. Is it easy or hard to read? Why?

[Most modern readers find it rather difficult, in large part because the small letters look so much alike and in some texts it is tightly packed together.]

Tell the students that early printers used this form because it was familiar to readers as the hand (writing style) used by Medieval scribes who chose it because it allowed many letters in each line, thus saving space on expensive parchment.

6. What exactly did Johannes Gutenberg do that makes him so honored? He did not invent an entirely new technology but created a workable system by utilizing existing devices—a press used for wine or olives was adapted to provide greater pressure and move paper to a uniform position and the ink used on woodblocks was reformulated to create a rich, glossy ink for metal type. Ask the students how ink used on metal type would have to be different from that used on woodblocks.

[It must be made stickier with oil so it will cling to the slick metal which thinner ink will not do.]

  “...the crafte of Enpryntyng was first founde in Magounce in Almayne [Mainz in Germany], whiche crafte is multiplyed thurgh the World in many places, & bookes ben had grete chepe and in grete nombre by cause of the same crafte.” 

– William Caxton

7. His one great invention was a mold that ensured the evenness of type cast from an alloy that would not shrink as it cooled. Carved wood cannot be consistent in size and soon wears down unevenly. This is illustrated in the Huntington's copy of Sebastian Brant's *Ship of Fools* in which the woodblock illustration shows considerable variation in the darkness of the printed image. Have the students use a rubber stamp or, better yet, a rubber type printing kit (available from Staples) to see how non-metal type produces an uneven image.
[There are many books that explain Gutenberg's printing process (e.g. Lieberman, 28–30). Also, the International Printing Museum in Carson (714/529-1832) has a replica Gutenberg press and gives excellent tours.]
8. Gutenberg has also contributed to our language. Printers began to store capital letters in the **upper case** in front of them and small letters in the **lower case**.
9. The next major innovation was the production of a printing plate. The images produced would not only be even, but there would be no more “pied” type from a dropped case. Soldering pieces of type together or pouring plaster of Paris over the type in a case both proved unworkable. The technique that was finally successful was to brush a frame of type with oil, then beat down onto it a sheet of moist papier mache. This mat was baked and used as a mold for molten metal. Interestingly, papier mache was the exact material used to copy portions of the Behistun inscription, a trilingual cliff carving in Western Iran (Robinson, 76–77).
10. Once useable type and printing plates could be easily manufactured, new typefaces began to appear, many clearly suited to specific purposes. Collect samples of various typefaces (Lieberman, 99–128) or computer fonts, and ask the class to decide what they would be particularly appropriate for. The typeface for a bank sign would not be the same one used to announce a shoe sale and neither might do as the heading of the obituary column in the newspaper. Have the students create scripts geared toward various tasks, and be sure they note the variety of type styles in the materials they see on their tour of the Library.
11. Modern printers, much more than modern electricians and plumbers, for example, have a job far different from that of their predecessors. Have the students research modern printing methods or ask an older printer to tell them how the job has changed in the last half century.

VIII. Extension Activities

1. Because of the angle at which we view a monumental inscription such as those placed all over Rome, the top lines will appear to be smaller than those closer to the reader. Have the students create two large vertical banners to be hung from the second story of the building—one with all lines the same size, one with the lines graduated to slightly smaller sizes as they approach the ground. Survey students from other classes about which one looks better.
2. Writing has undergone significant changes since the introduction of the computer. Fewer and fewer students can easily write cursive. Use the graffiti language developed for Palm Pilots to talk about where writing may be headed in our digital age.

Vocabulary

<i>cuneiform</i>	wedge-shaped writing used in Mesopotamia, made by pressing a carved stick into moist clay
<i>cursive</i>	flowing writing made of joined letters, commonly called handwriting; the name comes from the Latin word for “course,” as in the flow of a river
<i>glair</i>	the liquid that remains after beaten egg white has settled; often used as a wetting agent for pigments
<i>hieroglyphics</i>	a writing system using pictures or symbols; examples are early Egyptian and Mayan
<i>illumination</i>	rich decoration, associated with Medieval manuscripts
<i>manuscript</i>	a handwritten text
<i>parchment</i>	prepared animal skin (most commonly from sheep or cows) used for writing

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