

Words to Work By

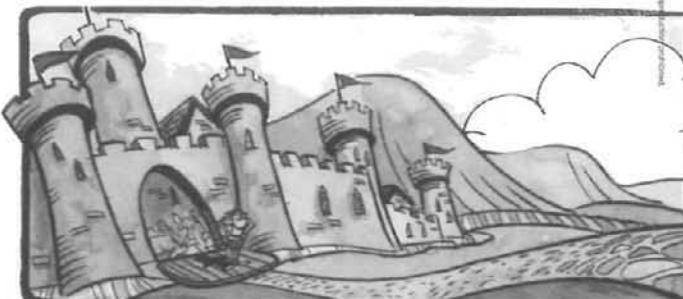
"The door to the room of success swings on the hinges of opposition."

"The test of your character is what it takes to stop you."

"You can do anything you ought to do."

"Blessed is the man who knows how to make stepping stones out of stumbling stones."

—taken from "Chapel Sayings of Dr. Bob Jones Sr."



Use with Lesson 1.

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Pretest

Write the quotations.

name _____



Use with Lesson 1.

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Materials and Preparation**Have available:**

- Cursive handwriting charts.

Prepare:

- A cursive name model on the front of each student's worktext.
- A cursive name model for each student's desk.
- A copy of the letter to the parents for each student from the Appendix.
- The calligraphy guide sheets for each student.



Remove the insert from the center of each student worktext by tearing along the perforation, making two guide sheets. Tell the students to keep one copy of the guide sheet in their notebooks. Collect and store the spare sheet to have as an extra in case one is lost or gets worn out.

Lesson Content**Introduction**

Introduce the student worktext and the theme—Tell the students that they will be improving their handwriting, as well as learning the Chancery style of lettering as they are introduced to various people and professions.

Instruct the students to turn to the table of contents. Introduce Penfellow, a sixth-century scribe, and Chanticleer, a notable member of the order *Galliformes*, the common, widely domesticated chicken. These characters will appear throughout the book. Read the limerick on the table of contents page and guide a discussion of the limerick and of the illustration of the two characters.

Next guide the students in an overview of the book. Tell them to read silently through the table of contents. As the students leaf through their books, point out the unit pages introducing the various professions and the Chancery

Digital Numerals name _____

1 2 3 4 5 6 7 8 9 0

Answer the questions about the pictures, using the above numeral formations.



What is the telephone number showing on the phone?

555-1234



What is the time of the flight that was cancelled?

6:30



What is the total shown on the calculator?

198.00



What is the time shown on the computer screen?

9:42

lessons at the end of each unit. Students may also look at the last unit, which concentrates on teaching uppercase letters, numerals, spacing, and layout in the Chancery style of lettering. Point out the sample writing selections as well as the calligraphy tips and glossary also included in the last unit.

Skill development

Guide a discussion of illustrations—Use the illustrations on the inside back cover of the student worktext to show correct posture, paper position, and pencil hold.

Demonstrate handwriting posture—Explain that the best handwriting posture is having the body bent slightly forward, not leaning to the left or to the right, with forearms resting on the desk. Check to see that each student is sitting comfortably in his chair with both feet on the floor. Be sure that each desk is slightly higher than the student's waist. Make notes about desk height problems so that seating assignments can be changed or mechanical adjustments made.

Demonstrate paper positioning—Paper should be positioned at a slant that approximately parallels the slant of the writing arm.

Demonstrate pencil hold—Pencils should be grasped lightly about an inch from the point.

Pretest

Guide the completion of the “Words to Work By” portion of the pretest on worktext pages iv and 1—Call attention to the illustration of Penfellow and Chanticleer leaving the castle. Discuss briefly the idea that the two characters are looking for a new profession.

Ask a student to read the quotations by Dr. Bob Jones Sr. Tell the class that he was a great evangelist and a very practical Christian. Help them to relate the content of the quotations to the theme of the book. Point out the name models attached to their desks. Instruct them to use the model as a guide as they neatly write their names on page 1.

Ask a student to read the instructions. Tell the students to refer to the cursive model on page iv as they complete page 1. Encourage them to do their best, but not to take too long. Stress that the page will not be graded or sent home but will be saved for them to see their progress as their handwriting improves during the year.



The cursive model of the quotations on worktext page iv will be used again in Lesson 66, which is the post-test.

Guide the completion of the “Digital Numerals” portion of the pretest on worktext page 2—Lead a brief discussion of the equipment illustrated and the digital displays that accompany them. Explain to the students that they will be writing cursive numerals rather than digital numerals. Tell them to refer to the cursive numeral models at the top of the page as they complete this part of the pretest.

Collect the papers. Make and record pertinent observations such as those listed below.

- Which letters or letter combinations are the most difficult for students to write and may require more than one lesson to review?
- Which students need additional activities at school and at home to strengthen fine-muscle coordination?
- Which students have trouble with alignment and spacing?
- Do any students have difficulty slanting consistently?

File the pretest so that you and your students can refer to it periodically in order to note progress.



You may want to send home the letter to the parents today. This will give an overall explanation of the handwriting program for the year.

Optional activity

Direct a writing activity—Read the following information to the students.

Most displays are visual although some, such as a fire alarm, can be auditory. Visual displays can be either digital or analogue. An analogue display shows the measurement increments such as on a clock face or thermometer. A digital display shows only the exact numbers involved using the digits 0-9.

Direct the students to list as many digital and analogue displays as they can. Point out the examples on page 2. (*Digital displays include the following: scoreboard, automobile odometer, display on photocopier; display on scales, clock, thermometer. Analogue displays include the following: clock, thermometer, and automobile speedometer.*)

PEOPLE AND PROFESSIONS

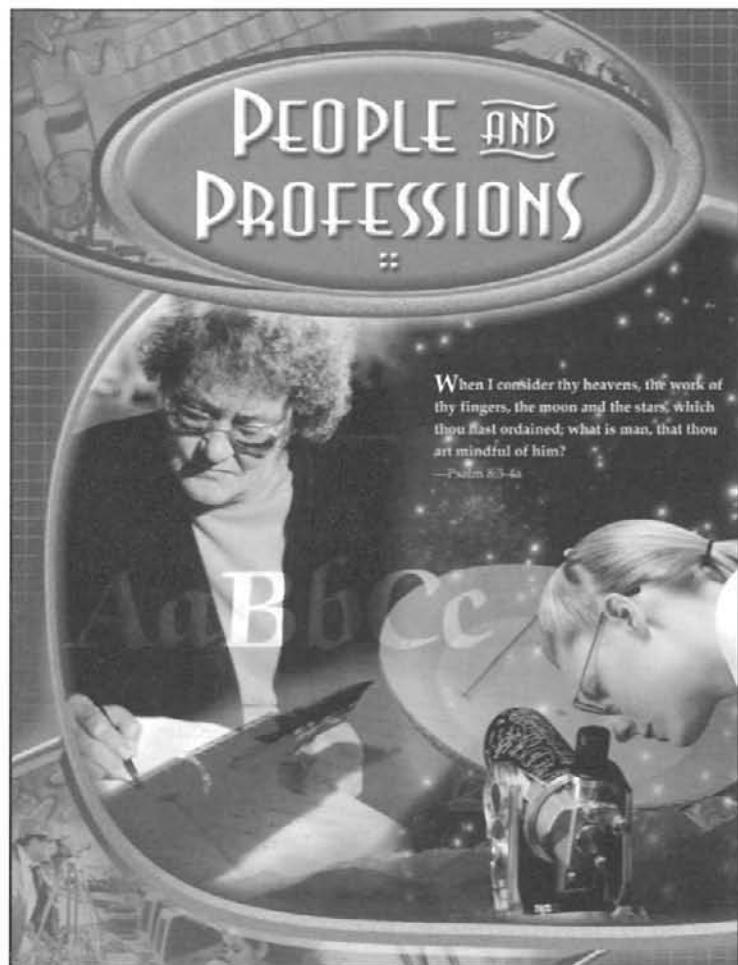


Calligrapher and Astronomer

In *HANDWRITING 6 for Christian Schools*, cursive letters are largely presented in groups containing similar stroke patterns, and uppercase and lowercase letters are reviewed together. In this unit, two of the one o'clock letters, *c* and *a*, are presented in conjunction with the occupations of the calligrapher and the astronomer. Learning about the calligrapher will add depth to the student's introduction to calligraphy. Astronomy is an occupation of interest to all ages.

Please read the whole unit before beginning to teach it, noticing especially the last lesson on calligraphy. You may find it helpful at this time to begin practicing the strokes for the new calligraphy letters.





Materials and Preparation

Have available:

- A nib pen (optional).

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Introduce the unit—Tell the students to turn to worktext page 3. Point out that in this unit they will be learning about the work of the calligrapher and the astronomer. Mention that the word *calligraphy* comes from two Greek words that mean “beautiful writing.” Tell the class that in the Far East calligraphy is done with a pointed brush

instead of with the special pen that we use in our Western culture.

Show the nib pen. Explain that in past years, calligraphy was done with this type of pen or with a pen made from a broad-edged reed or with a quill. Today many people do fine work with a chisel-point pen. Ask a student to read the unit verse. Discuss how this verse relates to the work of an astronomer. (*He investigates the things that God has made in the heavens.*) If time permits, ask several students to describe how they feel when they look up and consider the star-filled sky. (BAT: 3a Self-concept)

Skill development

Review the formation of c—Point out that *calligrapher* begins with the letter *c*. Verbalize the direction of each stroke as you write the uppercase and lowercase letters on the chalkboard. Point out that the uppercase letter begins at one o’clock. Remind the students that both letters connect to the letters that follow them.



*Begin at one,
Swing around to five.*



*Swing up and around to
one,
Retrace and swing around
to five.*

Demonstrate the writing of c—Allow volunteers to write the following words on the chalkboard.

<i>calligraphy</i>	<i>parchment</i>	<i>decorative</i>
<i>cursive</i>	<i>curved</i>	

Demonstrate the writing of lowercase c in pairs—Point out that the pencil is not lifted between the letters. Tell the class to air-trace the letter *c* in pairs and then have several students practice writing pairs of the letter *c* on the chalkboard.

Demonstrate alternate styles of writing the letter c (optional).



The Calligrapher's Terminology

name _____



As early as the third century A.D., it was recorded that scribes noted for the speed and beauty of their handwriting often accompanied great men on their journeys.

Contemporary scribes called calligraphers also engage in the art of fine handwriting. They are often employed by printers and publishers who recognize the beauty of their work.

Write the lettering term and its definition.



hook—a curved ending and beginning to strokes of an alphabet



pen nib—the removable tip of a lettering pen or fountain pen



swashes—long, decorative additions to letters



vellum—a fine grade of parchment paper prepared from lambskin, kidskin, or calfskin

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Use with Lesson 2.

Focus on writing the letter c—Refer the students to the model letters at the top of worktext page 4. Point out the one o'clock starting position for the uppercase letter *c* and the cursive stroke at the beginning of the lowercase *c*.

Direct the completion of worktext page 4—Ask a student to read the directions. Encourage the students to use their best handwriting as they write each lettering term and its definition. Circulate among the students, checking posture, paper positioning, and pencil grip.

Optional activity

Direct an art activity—Read the following information.

In 1843 Henry Cole commissioned John Calcott Horsley to design a Christmas scene to be printed on pasteboard. According to tradition, Cole commissioned the card because he was too busy with business that year to write to all his friends. One thousand of these cards were printed by Messrs. Jobbins of Warwick Court, Holborn. They printed the cards from a lithographic stone onto 5-by-3½-inch pieces of pasteboard, which were then colored by hand. After the printers filled Henry Cole's order, the excess cards were sold by a printer, Joseph Cundall, at Summerly's Home Treasury Office, 12 Old Bond Street, London, for one shilling each. Mr. Cole's printed Christmas greeting was the first Christmas card.

Point out that we can see examples of beautiful handwriting printed on cards. Direct each student to design and prepare a greeting card—Christmas or birthday. Remind him to use his best handwriting.

Guided practice

Direct attention to worktext page 4—Ask a student to read the title of the page and the paragraph about calligraphy. Explain to the students that on this page they will be writing information about lettering terms.

The Astronomer's Telescopes

name _____



Using powerful telescopes, astronomers study the sun, moons, and planets in our solar system. They are also able to observe distant galaxies and stars. With what they observe, they are able to predict events such as eclipses, comet sightings, and even the interference of sunspots on our communication systems.

Write the information about two of the world's largest telescopes.



The Hubble telescope orbits the earth and allows views of space that are unavailable from telescopes on the earth's surface.

This is an aerial view of the world's largest fixed-dish radio telescope, located near Arecibo, Puerto Rico.

Arecibo Radio Observatory National
Astronomy & Ionosphere Center

Use with Lesson 3.

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Materials and Preparation

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Relate the following information.

One of the astronomer's most important tools is the telescope. An early refractor telescope was used by Galileo in 1609 to look at the surface of the moon. He mounted two lenses at each end of a tube and adjusted them to focus the image. More than a hundred years later, Sir Isaac Newton developed the reflector telescope, which uses mirrors to reflect the light. Astronomers today can look into a composite telescope, which is a combination of both mirrors and lenses. Modern electronics has helped scientists develop radio telescopes. These can reach much farther into space than ordinary telescopes, and they help astronomers obtain information about our galaxy.

Skill development

Review the formation of *a*—Verbalize the direction of each stroke as you write the letters on the chalkboard. Remind the students that the letter *a* connects to letters that follow.



Begin at one,
Swing around to lock,
Retrace and curve.



Swing up and around to one,
Retrace and swing around to lock,
Retrace and curve.

Demonstrate the writing of *a*—Allow several students to write the following words on the chalkboard.

astronomy planet Arizona
stars retractor

Demonstrate the writing of lowercase *a* in pairs—Point out that the pencil is not lifted between letters. Tell the class to air-trace the letter *a* in pairs, and then allow several students to practice writing pairs of the letter *a* on the chalkboard.

Demonstrate alternate styles of writing the letter *a* (optional).



Guided practice

Direct attention to worktext page 5—Ask a student to read the introductory paragraph about telescopes.

Focus on writing the letter *a*—Refer the students to the model letters at the top of worktext page 5. Point out the one o'clock starting position for both uppercase and lowercase *a*.

Direct the completion of worktext page 5—Ask another student to read the directions. Instruct the students to write the information about the two telescopes on the lines provided.

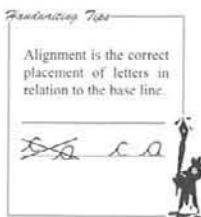
Optional activity

Direct a writing activity—Instruct each student to write one or two stanzas of the poem "The Star" by Jane Taylor (*Favorite Poems Old and New*, edited by Helen Ferris).

An Astronomical Task

name _____

Write the letters and words, using correct alignment.



Handwriting Tip:
Alignment is the correct placement of letters in relation to the base line.

*CC**cc*
*calligrapher**AA**aa*
astronomer

Alphabetize each column of words on the lines below.

<i>celestial</i>	<i>angle</i>	<i>reflector</i>
<i>comet</i>	<i>alignment</i>	<i>refractor</i>
<i>cluster</i>	<i>ascender</i>	<i>meteor</i>
<i>cosmology</i>	<i>alphabet</i>	<i>galaxy</i>
<i>chromatic</i>	<i>accuracy</i>	<i>planet</i>
<i>celestial</i>	<i>accuracy</i>	<i>galaxy</i>
<i>chromatic</i>	<i>alignment</i>	<i>meteor</i>
<i>cluster</i>	<i>alphabet</i>	<i>planet</i>
<i>comet</i>	<i>angle</i>	<i>reflector</i>
<i>cosmology</i>	<i>ascender</i>	<i>refractor</i>

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Use with Lesson 4.

Materials and Preparation

Prepare:

- Handwriting lines on the chalkboard.
- The following words on the chalkboard.

calligrapher *astronomer*

Lesson Content

Introduction

Create interest in the lesson—Instruct a volunteer to read the title of the lesson. Ask the students what kind of job would be *astronomical*. Elicit the idea that it would be a really big job. Tell them that an astronomical unit of length is

equal to the distance between the sun and the earth, about 93 million miles, and that the term *astronomical* is used to describe something that is really big. Bring out the idea that the word *astronomical* is derived from the Greek word for star—*astro*.

Skill development

Focus on the handwriting tip on worktext page 6—Ask a student to read aloud the handwriting tip in the box at the top of the page. Call attention to the incorrect alignment samples. Remind the students that the letters should rest on the base line. Point out the words on the chalkboard and emphasize the proper alignment of the letters.

Guided practice

Focus on writing the letters c and a—Direct a student to read the directions at the top of worktext page 6. Remind the students that uppercase *c* and *a* begin at one o'clock. Also point out that all four letters connect to the letters that follow them. Instruct the students to trace the gray letter models and then to practice the letters and words on the lines provided.

Direct the completion of worktext page 6—Ask each of three students to read a list. Direct the students to tell the correct alphabetical order for the first list. Instruct them to number the words in alphabetical order before writing them on the lines. Continue with the other lists.

Optional activity

Direct a research activity—Give the students the following information about an astronomical instrument.

A coelostat is an arrangement of mirrors driven by clockwork so as to reflect sunlight vertically down a hollow tube to a telescope. This arrangement of mirrors prevents the telescope from having to be pointed directly at the sun.

Direct each student to look up the word *coelenterate* in a dictionary and write its definition. Then tell him to write a sentence that explains what the definition of *coelenterate* has in common with the definition of *coelostat*. (The word *coelenterate* means “hollow intestines.” Both of the words have the prefix *coel-*, meaning “hollow.”)

The Lights in the Heavens

"And God made two great lights: the greater light to rule the day, and the lesser light to rule the night: he made the stars also."

—Genesis 1:16

"He telleth the number of the stars: he calleth them all by their names."

Psalm 147:4

"Which maketh Arcturus, Orion, and Pleiades, and the chambers of the south. Which doth great things past finding out: yes, and wonders without number." Job 9:9-10

Write the verses on the lines below.

name _____

Self-evaluation	s - n
Posture	
Paper Positioning	
Pencil Hold	
Letter Formation	
Alignment	
Slant	
Spacing	
Neatness	

Core Competencies

Use with Lesson 5.

7

Materials and Preparation

Have available:

- An evaluation form for each student.

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Relate the following information.

The Bible tells us that there are too many stars to count. As astronomers develop better equipment, they are finding more and more stars. In 1603, John Bayer introduced a systematic way of identifying particular stars within a constellation. He assigned the first letter of the Greek alphabet, *alpha*,

to the brightest star of the constellation. He used the second letter, *beta*, to name the second brightest star, and so on until he had used up all the letters in the Greek alphabet. Then he continued with the letters of the Roman alphabet. He also made star charts that included maps of the constellations.

Skill development

Review the formation of *c* and *a*—Verbalize the direction of the strokes as you write each uppercase and lowercase letter on the chalkboard.



See pages ix-xii for the stroke descriptions.

Ask how the uppercase letters are similar. (*They begin at the one o'clock position.*) Ask how all four letters are alike. (*They all connect to the letters that follow them.*) Ask volunteers to write the following sentences on the chalkboard.

Contemporary scribes are called calligraphers.

Astronomers cannot call all the stars by name.

Assessment

Direct attention to worktext page 7—Tell the class that these Bible verses refer to some of the constellations that John Bayer charted.

Direct attention to the self-evaluation chart on worktext page 7—Explain to the students that after writing the Scripture verses on this page they will evaluate their own handwriting. Explain that they will check the *s* column if they feel they have performed the handwriting skill satisfactorily. If the skill was neglected, they will check the *n* column.

Guide the completion of worktext page 7—Ask several students to read the directions and the verses. Tell the students to write the verses. Encourage them to do their best because you will also evaluate this page. (BAT: 2e Diligence)



You may want to use the evaluation form in the Appendix with this lesson. Be aware that the back of this page will be used in the next lesson on calligraphy.

Optional activity

Direct a writing activity—Read the following information to the students.

Of all the scriptural references to stars, perhaps the most intriguing are the references to the “star of wonder.” What exactly was the “star of wonder” that the wise men saw in the east? In order to speculate as to the nature of that special star, we need to establish two things: the time of Christ’s birth and the appearance of the skies at the time of Christ’s birth.

First, let’s establish the time of the birth of Christ. The Scripture tells us that Christ was born in the days of Herod the king, and history establishes the death of Herod in 4 B.C.; therefore, Christ’s birth was sometime before 4 B.C. But how long before 4 B.C.? Another clue from Scripture will help us determine this. The Scripture says that Christ was born at a time of taxation by Caesar Augustus. According to a list of the years that decrees for tax collection were issued, 8 B.C. is the only year near the time under discussion. So Christ was born sometime after 8 B.C. but before 4 B.C. Also, it was probably in the spring since that is the time when lambs are born and shepherds “keep watch over their flock by night.”

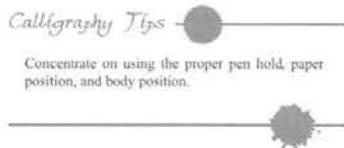
The second thing to consider is the appearance of the skies at the time of Christ’s birth. Did the wise men see a star, a meteor, a comet, or a planet? The Greek word for *star* can mean any one of those things. It could not have been a meteor because

meteors burn up in a flash of light in just a few seconds and that does not agree with the description we have in Scripture. Nor could it have been a comet because at that time comets were viewed as evil omens of war, pestilence, or famine—not good signs. Furthermore, although an unusual grouping of the planets Jupiter, Saturn, and Mars did happen in the year 6 B.C., a description of this grouping does not fit with the scriptural account either. Therefore, we are left with the possibility that the wise men saw a special star. And special it was, for Scripture says that before they came to Herod, they saw “his star in the east” and that after they left Herod, they “saw the star” which caused them to rejoice “with exceeding great joy.” Apparently they had not seen the star after they left the east and were astonished to see it again. The Scripture also says that “the star, which they saw in the east, went before them.” Literally that means that the star was going before them until it came and stood over where the little child was. A natural star could not have done what that verse describes. It was also special because apparently only the wise men saw it; else why would Herod have “enquired of them diligently what time the star appeared,” and how could the wise men follow it to the place of Christ’s birth when Herod couldn’t?

Direct the students to write the following verses about the star: Matthew 2:2, 7, 9, and 10.

Calligraphy Letters name _____
c and a

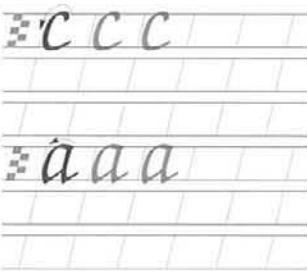
c a



Copy the practice strokes.



Write the letters *c* and *a*.



Use with Lesson 6.

B

Materials and Preparation

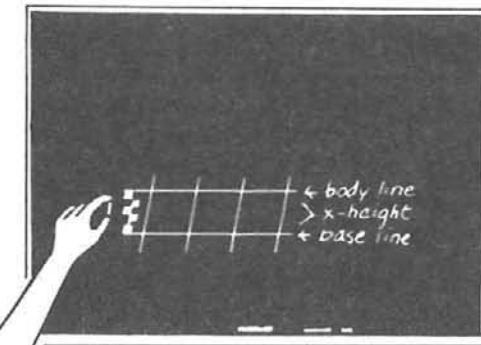
Have available:

- A chisel-point pen for each student.
-
- Before distributing the pens, tape students' names or initials to the pens in order to assure their return to the correct student. To avoid loss or overuse of the pens, you may want to collect the pens after each lesson.
- A guide sheet for each student.
 - A piece of typing paper for each student.
 - Worktext page 8 for each student if previously collected for assessment of page 7.
 - An overhead projector.
 - An overhead pen (the kind with a wide, flat edge) to use on the overhead projector.

Prepare:

- A transparency of the lowercase guide sheet.

Because of ease of use, we highly recommend using an overhead projector for the calligraphy lessons. However, there are additional options. You may use the overhead pen with a white board. You will need to draw two lines five pen tip widths apart as a guide. Add a few slant lines at 13°. You may also use the chalkboard. For this you will need to draw two lines five chalk widths apart and add a few slant lines at 13°. The chalk is held lengthwise for lettering.



Lesson Content

Introduction

Explain the calligraphy sections in the worktext—Show the students the two sections of their worktexts where they can find calligraphy information.

First, point out that there is a lowercase calligraphy lesson at the end of each unit. Direct the students to look briefly at pages 14 and 20 as examples.

Then direct them to the calligraphy unit which starts on page 81. Allow them to leaf through the pages and notice the following things:

- The calligraphy lowercase review on pages 82-83.
- The calligraphy uppercase lessons on pages 84-96.
- The calligraphy numeral lesson on page 97.
- The spacing and layout lessons on pages 98-99.
- The calligraphy examples on pages 100-103.
- The calligraphy reference pages (Calligraphy Glossary and Calligraphy Tips) on pages 104-6.

Direct a closer look at page 104—Direct the students to the Calligraphy Glossary on page 104 of their worktext. Discuss with them the definitions of *calligraphy* and *Chancery cursive*.



You may wish to point out that the word *cursive* is from the Latin meaning “flowing.” It usually refers to “writing with a running hand so that the characters are rapidly formed without raising the pen and in consequence have their angles rounded and separate strokes joined and at length become slanted” (*Oxford English Dictionary*). In ancient manuscripts, however, the “cursive style” could refer to printing that showed some of these characteristics.

Then direct the students to read the definition of *guide sheet*. Tell them to close their books while you demonstrate the definition.

Illustrate the parts of the guide sheet as mentioned in its definition—Hold up a guide sheet so that the side labeled “Lowercase Guide Sheet” faces the students. Trace a base line and a body line with your finger. Explain that these lines are two of the five guidelines that indicate the height of each stroke. Tell them that they will learn about the other three guidelines when they do the Chancery cursive uppercase letters and numerals.

Now indicate the x-height. Tell the students that *x-height* refers to the distance between the base and body lines and that it is always equal to five pen tip widths. Explain that even without a guide sheet or with a different-sized pen, they can figure out the proper x-height by marking a distance of five pen tip widths on a piece of typing paper.

Again, hold up the guide sheet with the side labeled “Lowercase Guide Sheet” facing the students. Trace a slant line with your finger. Explain that these lines are there to indicate the proper slant (13°) of each stroke. This is not to be confused with the 45° pen angle which is the angle of the chisel point (flat edge) of the pen to the horizontal edge of the paper. (See proper position under Skill Development.)

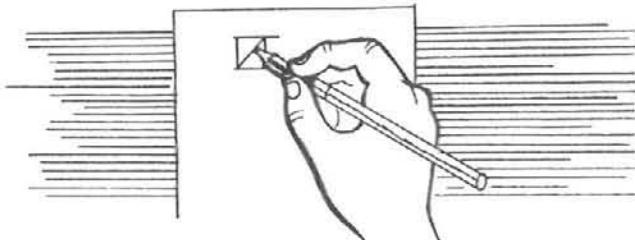
Explain that they will use the lowercase guide sheet as they learn their lowercase Chancery cursive letters. Show them the advanced guide sheet and explain to them that they will use it when they learn the Chancery cursive uppercase letters and numerals. You may desire to point out that all five guidelines are on the advanced guide sheet.

Finally, review the new terms. Review the parts of a guide sheet (*the slant lines, the x-height, and these two guidelines: the base and body lines*) and the use of a guide sheet (*to control the height and slant of each stroke*).

Illustrate the use of a guide sheet as mentioned in its definition—Place a guide sheet under a piece of typing paper and hold the paper and guide sheet up to show the students how the lines from the guide sheet can be seen through the paper to help direct the height and slant of their strokes.

Skill development

Demonstrate the proper positions mentioned on worktext pages 105-6—Distribute the chisel pen and a piece of typing paper to each student. Instruct him to lay these aside for later use. Direct the students to the Calligraphy Tips on pages 105-6. Read and demonstrate the tips about proper body position, paper position, and pen hold. Tell the students to imitate you as you demonstrate. Stress the importance of locking the cap on the pen whenever it is not in use to keep the pen from drying out.



Read and demonstrate the tip about the proper pen angle. Review the fact just established that the proper pen position is upright, but now add the fact that the chisel point of the pen should be positioned at a 45° angle to the horizontal edge of the paper. Demonstrate how to draw a small box on the top of their paper with a diagonal line from the top right corner to the bottom left corner. Then show them how to place their pen on this line to determine a 45° angle. Stress the point that this one rule will make a big difference between well-formed letters and letters that have little resemblance to the correct form.

Review three confusing concepts—Explain that with a pen positioned upright and the chisel point positioned at a 45° angle, they will write strokes slanted 13°. Direct the students to set aside their pens, paper, and guide sheets as you demonstrate the strokes and letters.

Demonstrate the practice strokes—Using the guidelines on the overhead, demonstrate the practice strokes shown on student worktext page 8.

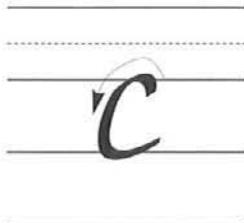


You may either write directly on the transparency of the guide sheet or place the transparency under another piece of acetate to use as a guide.

Explain to the students that these strokes are the basic strokes for all of the Chancery cursive letters. Tell them that practicing these strokes will help them to form better letters.

Demonstrate the formation of lowercase c and a—Verbalize the direction of each stroke as you write the letters on the lines on the overhead. Tell the students to be sure to use the whole edge of the chisel point or their strokes will be thin and straggly. Point out that both letters begin at the one o’clock position and that the letters should not connect to the letters that follow. Remind them that the definition

of *cursive* can refer to letters that are not connected but have other characteristics of the cursive style. They will have a natural tendency to connect some letters. Connecting letters is acceptable in some cases, but try to limit it until the students are writing the strokes for the letters in the correct order and starting at the correct o'clock position.



*Curve up,
Swing around.*



*Glide left,
Swing around to lock,
Retrace and curve.*

1. Note the arrow that indicates the direction of each stroke.
2. Trace the black letter with your finger.
3. Trace the gray letters with your pen.

Walk around the classroom to check that the students are making the correct strokes, both for practice strokes and for letter formation. Point out that the 45° angle of their pens will cause their letters to go above and below the line a bit. Encourage them to place their letters as much in the center of the guidelines as possible.



Refer to the Calligraphy Introduction on
pages xxi-xxix.

Continued practice

Tell the students to continue to practice with typing paper and a guide sheet—Direct the students to place their lowercase guide sheet under a piece of typing paper and continue to practice their strokes and letters.

Guided practice

Direct handwriting on worktext page 8—Review the calligraphy tip at the top of the page. Direct attention to the practice strokes. Then refer the students to the letter models on the lines at the bottom of the page. Read the following procedures for practicing the letters at the bottom of the page.

PEOPLE AND PROFESSIONS

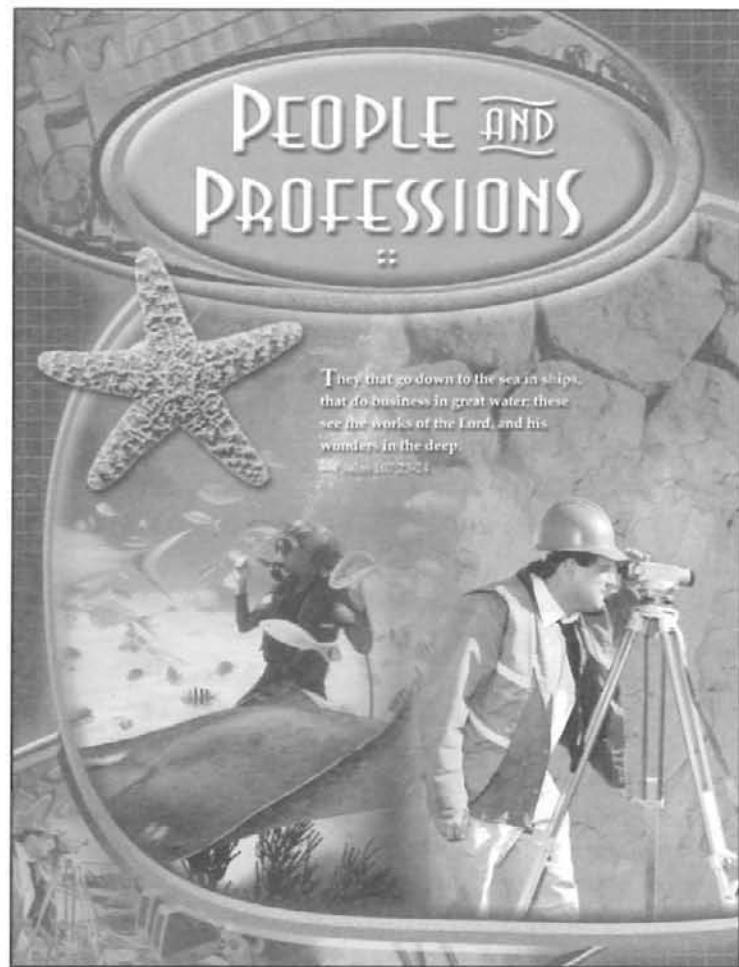


Oceanographer and Quarrier

Two more one o'clock letters, *o* and *q*, are reviewed in this unit. The occupations oceanographer and quarrier both have an aura of mystery that will be intriguing to the student.

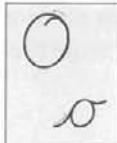
You will want to preview the entire unit now, concentrating especially on the calligraphy lesson. Practice is essential to your learning the strokes for the new calligraphy letters.





Over the Ocean Blue

name _____



A scientist who studies the ocean is called an oceanographer. He often works on a research ship equipped with special instruments. An oceanographer studies the waves, currents, and tides of the ocean.

Write the following paragraphs about the ocean on handwriting paper.

The waves of the ocean move up and down. When a wave reaches the shore, the bottom of the wave begins to drag, and the top of the wave falls forward.

The waters in the ocean move in streams called currents. The flow of the currents is caused by the earth's rotation.

10

Use with Lesson 7.

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Materials and Preparation

Have available:

- Handwriting paper for each student.

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Introduce the unit—Tell the class to turn to worktext page 9. Use questions such as the following to discuss the page.

1. What occupations will be studied in this unit?
2. What do you think an oceanographer does? (*studies the ocean*)
3. What do you think a quarrier does? (*digs stone from a quarry*)
4. Read the unit verse to yourself. What occupation do you think it refers to? (*oceanographer*) Why? (*These words suggest the ocean: sea, ships, wonders in the deep.*)

After the discussion, point out that both the oceanographer and the quarrier work closely with something that the Lord has created and therefore have an excellent opportunity to observe His wonders.

Direct attention to worktext page 10—Ask a student to read the information about an oceanographer at the top of the page.

Skill development

Review the formation of o—Verbalize the direction of each stroke as you write the letters on the chalkboard. Remind the students that lowercase *o* connects to letters that follow but that uppercase *O* does not.



**Begin at one,
Swing around to lock
and curl.**

O

*Swing up and around to
one,
Retrace and swing around
to lock,
Sweep out.*

Demonstrate the writing of *o*—Tell the class to air-trace the lowercase *o*, and then allow volunteers to write the following words on the chalkboard.

<i>ocean</i>	<i>forward</i>
<i>shore</i>	<i>Atlantic Ocean</i>
<i>move</i>	

Demonstrate the writing of lowercase *o* in pairs—Point out that the pencil is not lifted between the letters. Direct the class to air-trace the letter *o* in pairs, and then allow several students to practice writing pairs of the letter *o* on the chalkboard.

Demonstrate alternate styles of writing the letter *o* (optional).

Guided practice

Focus on writing the letter *o*—Refer the students to the model letters at the top of worktext page 10. Point out the one o'clock starting position for uppercase *o* and the cursive stroke at the beginning of the lowercase *o*.

Direct the completion of worktext page 10—Have volunteers read the directions and the two paragraphs. Instruct the students to write the paragraphs about the ocean on handwriting paper.

Optional activity

Guide a discussion about scientists—Point out to the students that many other scientists besides oceanographers are also interested in the oceans.

Write the following list of types of scientists on the chalkboard.

<i>physicist</i>	<i>chemist</i>
<i>marine biologist</i>	<i>meteorologist</i>

Read each of the following statements and tell the students to choose from the list on the chalkboard which type of scientist each statement refers to. The items from the list can be used more than once.

1. He investigates the forms of plant and animal life in the oceans. (*marine biologist*)
2. He studies the influence of the oceans on weather and climate. (*meteorologist*)
3. He studies new methods of recovering minerals from water. (*chemist*)
4. He attempts to produce electricity from the energy of the tides. (*physicist*)
5. He attempts to find an economical way to produce drinking water from sea water. (*chemist*)

Point out that many other people besides scientists are interested in the oceans. Refer to the verses written on worktext page 9. Then list on the chalkboard the following areas of ocean-related businesses.

<i>weather</i>	<i>minerals</i>
<i>transportation</i>	<i>recreation</i>
<i>food</i>	

Ask for examples of ways that these areas are connected with the ocean. For example, a cruise ship, an ocean-going vessel, was designed for recreation and transportation.

Quarrying for Granite

name _____

Q

A quarrier digs, cuts, and blasts stone in an open pit, or quarry.

Write the outline on handwriting paper.

I. Crushed stone

- Procedure for crushing stone
 - Explosives set off in holes
 - Stone crushed in crusher plant
- Purposes for crushed stone
 - Used in concrete
 - Used in road building

II. Dimension stone

- Procedure for cutting stone
 - Large blocks cut by machine
 - Small blocks cut with wedges
- Purposes for cut stone
 - Used in buildings
 - Used in monuments

Use with Lesson 8. 11



side and flat on the other. Feathers are used with wedges and a drill in an operation called “plug and feather” which breaks up the rock into chunks. The quarrier also uses the drill to make holes for explosives if he wants to shatter the rock. The channeling machine is a much larger piece of quarry equipment. It looks like a small locomotive, but it has long chisels on its sides. As the channeling machine moves along a track, it chisels slowly into the rock, sometimes cutting as deeply as ten feet.

Point out that on the worktext page the students will learn about two kinds of stone that the quarrier can produce with this equipment.

Direct attention to worktext page 11—Ask a student to read the sentence about the quarrier at the top of the page.

Skill development

Review outline form—Remind the students that major points in an outline have a Roman numeral or an uppercase letter before them and that these points in an outline can be complete sentences or phrases. Tell them that smaller points in an outline have an Arabic numeral before them. Write the Roman numerals, uppercase letters, and Arabic numerals in the correct form on the chalkboard.

Example:

- I.
 - A.
 - 1.
 - 2.
 - B.
 - 1.
 - 2.
- II.
- A.
 - 1.
 - 2.
 - B.
 - 1.
 - 2.

Materials and Preparation

Prepare:

- Fourteen handwriting lines on the chalkboard for the outlining activity.
- The following words on the chalkboard.

quarrier Canfield Quarry

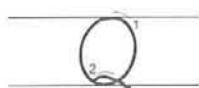
Lesson Content

Introduction

Relate the following information about quarrying.

The quarrier uses several different kinds of equipment to help him with his job. One important item is a feather, a piece of steel that is rounded on one

Review the formation of *q*—Verbalize the direction of each stroke as you write the letters on the chalkboard.



(1) **Begin at one,**
Swing around to lock.
(2) **Curve and slash.**



Swing up and around to one,
Retrace and swing around to lock,
Drop low,
Curve right and up to lock,
Bounce.

Point out that the uppercase letter begins at one o'clock. Direct attention to the words on the chalkboard. Tell the students to note that uppercase *q* connects to letters that follow.

Demonstrate the writing of *q*—Tell the class to air-trace the letters. Allow several students to write the words on the chalkboard, using your examples as models.

Demonstrate alternate styles of writing the letter *q* (optional).



Guided practice

Focus on writing the letter *q*—Refer the students to the model letters at the top of worktext page 11. Remind them that both uppercase and lowercase *q* connect to letters that follow.

Guide the completion of the outline activity on worktext page 11—Instruct a student to read the outline about quarrying. Ask another student to read the directions. As the students complete the page, walk around the classroom to check correct outline form.

Optional activity

Direct a writing activity—Explain to the students that both rocks and minerals are quarried. Tell them that minerals are pure substances (either elements or compounds) whereas rocks are mixtures of minerals. Explain that this activity is about minerals only. Copy the following Scripture references for the students.

Ezra 8:27 (*copper and gold*)

Psalm 19:10 (*gold*)

Daniel 2:33 (*iron*)

Jeremiah 6:29 (*lead*)

Genesis 23:16 (*silver*)

Isaiah 1:25 (*tin*)

Revelation 21:18 (*jasper and gold*)

Genesis 2:12 (*onyx*)

Exodus 24:10 (*sapphire*)

Direct each student to look up each reference and to write the name of the mineral mentioned next to its reference. Encourage him to look up each mineral in a dictionary and to write a sentence about the use of that mineral next to its name.

A Puzzle of Professions

name _____

Write the letters and words. Watch for descenders.

Handwriting Tip:
Do not let uppercase letters run into descenders.

quarrier
QQQQQ

O O
o o
oceanographer

QQ
q q
quarrier

Complete the crossword puzzle using the quarrying words down and the oceanography words across.

Across

- the rise and fall of the ocean
- set in motion by the wind
- a scientist who studies the ocean
- ocean water that moves in a stream

Down

- a workman in a quarry
- stone cut into blocks
- substance in a quarry
- stone used for road building

stone waves current tides crushed quarrier oceanographer dimension

Use with Lesson 9.

Skill development

Focus on the handwriting tip at the top of worktext page 12—Ask a student to read aloud the handwriting tip in the box at the top of the page. Remind the students that uppercase and tall letters should not run into descenders from the line above. Point out the words on the chalkboard. Then write *Atlantic Ocean* below *oceanographer*, demonstrating that the tall letters do not run into the descenders. Next write *Camton Quarry* directly below *quarrier*, running the *c* of *Camton* into the *q* of *quarrier*. Point out the importance of remembering this handwriting tip.

Guided practice

Focus on writing the letters *o* and *q*—Direct a student to read the directions at the top of worktext page 12. Remind the students that uppercase *o* and *q* begin at one o'clock and that uppercase *q* and lowercase *o* and *q* connect to the letters that follow them. Instruct the students to practice the letters and words on the lines provided and to watch for descenders.

Direct the completion of the crossword puzzle on worktext page 12—Ask a student to read the directions. Remind the students that sometimes it is better to use a printing style. Instruct the students to use PreCursive letters to complete the puzzle.

Optional activity

Direct a writing activity—Instruct each student to use the terms from the puzzle on worktext page 12 to write sentences. Encourage him to use as many of the terms in one sentence as he can.

Materials and Preparation

Have available:

- A globe or a map of the world.

Prepare:

- Handwriting lines on the chalkboard.
- The following words on the chalkboard.

oceanographer *quarrier*

Lesson Content**Introduction**

Direct attention to the map displayed—Help the students find on the globe or map as many oceans and seas as time permits. Examples are the Antarctic Ocean, Arctic Ocean, Atlantic Ocean, Indian Ocean, Pacific Ocean, Aegean Sea, Baltic Sea, Bering Sea, Black Sea, Caribbean Sea, China Sea, Irish Sea, Sea of Japan, Mediterranean Sea, and Red Sea. Mention that oceanographers do their work in oceans all over the world.

Lesson 10 Sea Captain, Then Hymn Writer Worktext, page 13

**Sea Captain,
Then Hymn Writer**

name _____

*Saved from sins of cruelty and greed and called out
from a miserable life as a slave-ship captain, John
Newton wrote "Amazing Grace" because he knew
that his life was in God's hands. This famous hymn
has three stanzas that speak of God's grace in salvation.
His grace in keeping His children from sin, and
His grace in bringing His children safely to heaven.*

Write the hymn on handwriting paper.

Amazing Grace

*Amazing grace! how sweet the sound,
That saved a wretch like me!
I once was lost, but now am found,
Was blind, but now I see.*

*'Twas grace that taught my heart to fear,
And grace my fears relieved:
How precious did that grace appear
The hour I first believed!*

*Thro' many dangers, toils, and snares,
I have already come.
It's grace hath bro't me safe thus far,
And grace will lead me home.*

Use with Lesson 10. 13

Self evaluation	s n
Posture	
Paper Positioning	
Pencil Hold	
Letter Formation	
Alignment	
Slant	
Spacing	
Neatness	

Handwriting: *neatness improvement*

and other hardships to make John start thinking about spiritual things. He finally surrendered his life to the Lord when he was thirty years old, and later he became a preacher.

Direct attention to worktext page 13—Ask a student to read the information about John Newton at the top of the page.

Skill development

Review the formation of o and q—Verbalize the direction of the strokes as you write each uppercase and lowercase letter on the chalkboard.



See pages ix-xii for the stroke descriptions.

Ask how the uppercase letters are similar. (*They begin at one o'clock.*) Ask how the lowercase letters are alike. (*They begin with a cursive stroke up and around to one.*)

Assessment

Direct attention to the self-evaluation chart on worktext page 13—Remind the students that after writing the hymn on this page they will evaluate their own handwriting on the chart.

Guide the completion of worktext page 13—Allow volunteers to read the directions and the three stanzas of "Amazing Grace." Encourage the students to do their best as they write the hymn on handwriting paper. Then lead the class in singing the hymn together.



You may want to use the evaluation form in the Appendix with this lesson. Be aware that the back of this page will be used in the next lesson on calligraphy.

Materials and Preparation

Have available:

- Handwriting paper for each student.

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Relate the following information about John Newton.

John Newton lived from 1725-1807. Although he was rebellious and proud in his early years, God had a plan for his life. John was kidnapped and forced to become a sailor when he was only fourteen years old. He was whipped when he tried to desert the ship and ended up as a white slave on an island off the coast of Africa. At last he was rescued by a sea captain sent by his father; but trouble struck again, and he almost drowned in a terrible storm on the way back to England. God used these

Optional activity

Direct a writing activity—Read the following information about the Reverend Hopper, the author of the hymn "Jesus, Saviour, Pilot Me."

Like John Newton, the Reverend Hopper was a man who knew the life of the sea and later wrote hymns. The Reverend Hopper was from a seafaring family and also ministered to many seamen at the Church of Sea and Land in the New York Harbor. His hymns directly reflect his knowledge of the sea; therefore, they had a great appeal to seafaring men.

Provide a copy of the words to the hymn "Jesus, Saviour, Pilot Me" for each student.

*Jesus, Saviour, pilot me,
Over life's tempestuous sea;
Unknown waves before me roll,
Hiding rock and treacherous shoal;
Chart and compass come from Thee,
Jesus, Saviour, pilot me.*

Direct each student to read the hymn carefully and use a dictionary and a Bible to answer the following questions on handwriting paper.

1. What is the meaning of the word *tempestuous?* (*stormy*)
2. What is the meaning of the word *shoal?* (*shallow water*)
3. At the end of verse 1 the Reverend Hopper wrote, "Chart and compass come from Thee." What does that mean? (*Jesus will guide us.*)
4. What passage of Scripture tells the story in which Jesus says "Peace, be still" to the waves? (*Mark 4:39*)
5. What is the meaning of the word *sovereign?* (*having supreme rank or power*)

Lesson 11

Calligraphy Letters *o* and *e*

Worktext, page 14

Calligraphy Letters name _____
o and *e*

Calligraphy Tips

Perform strokes in the correct order and start and finish each stroke in the proper place.

o e

Copy the practice strokes.



Write the letters *o* and *e*.

o o o

e e e



Use with Lesson 11.

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14

- An overhead projector.
- An overhead pen.

Lesson Content

Introduction

Review some of the terms listed on worktext page 104—Direct the students to turn to the Calligraphy Glossary on page 104 in their worktexts. Review the meaning of the terms related to the guide sheet. (*the slant lines, the x-height, and these two guidelines: base and body lines*) Then review the reason for using the guide sheet. (*to control the height and slant of each stroke*)

Skill development

Review some of the tips listed on worktext pages 105-6—After handing out a pen and piece of typing paper to each student, direct their attention to Calligraphy Tips on pages 105-6 in the worktext. Read and demonstrate the tips about proper body position, paper position, and pen hold. Have the students imitate you as you demonstrate. Stress the importance of locking the cap on the pen whenever it is not in use to keep the pen from drying out.

Read and demonstrate the tip about proper pen angle. Remind the students to draw a small box with a diagonal line from the top right corner to the bottom left corner to help them determine the 45° angle of the chisel point to the horizontal edge of the paper. Direct them to set aside their pens, paper, and guide sheets as you demonstrate the strokes and letters.

Read the tip about proper breath control—Explain to the students that if they either hold their breath or breathe out when they write, they will have smoother-looking letters.

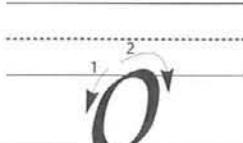
Review the practice strokes—Using the overhead pen, write the practice strokes on the lines on the overhead or white board.

Materials and Preparation

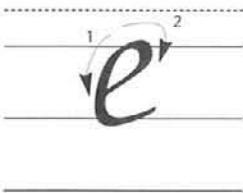
Have available:

- A chisel-point pen for each student.
- A guide sheet for each student.
- A piece of typing paper for each student.
- A transparency of the lowercase guide sheet.

Demonstrate the formation of lowercase o and e—Write the letters on the lines on the transparency, verbalizing the direction of each stroke as you write. Point out that both letters begin at the eleven o'clock position. Remind the students that the letters should not connect to the letters that follow.



- (1) Swing around left.
(2) Swing around right.



- (1) Swing around left.
(2) Swing around right to
halfway between base
line and body line.

Guided practice

Direct handwriting on worktext page 14—Direct the students to set aside their guide sheet and typing paper for additional practice later. Review the calligraphy tip at the top of the page. Direct attention to the practice strokes. Refer the students to the letter models on the lines at the

bottom of the page. Remind them of the following procedures for practicing the letters at the bottom of the page.

1. Note the arrow that indicates the direction of each stroke.
2. Trace the black letter with your finger.
3. Trace the gray letters with your pen.

Walk around the classroom to check that the students are making the correct strokes, both for practice strokes and for letter formation. Look for common errors.



Refer to the Calligraphy Introduction on
pages xxi-xxix.

Continued practice

Direct practice with typing paper and a guide sheet—Remind the students to use the side of the guide sheet labeled “Lowercase Guide Sheet.” Tell each student to write the practice strokes, new letters, and the letters that were taught in the last calligraphy lesson (*c* and *a*). Be sure to collect the pens when the students have finished.

PEOPLE AND PROFESSIONS

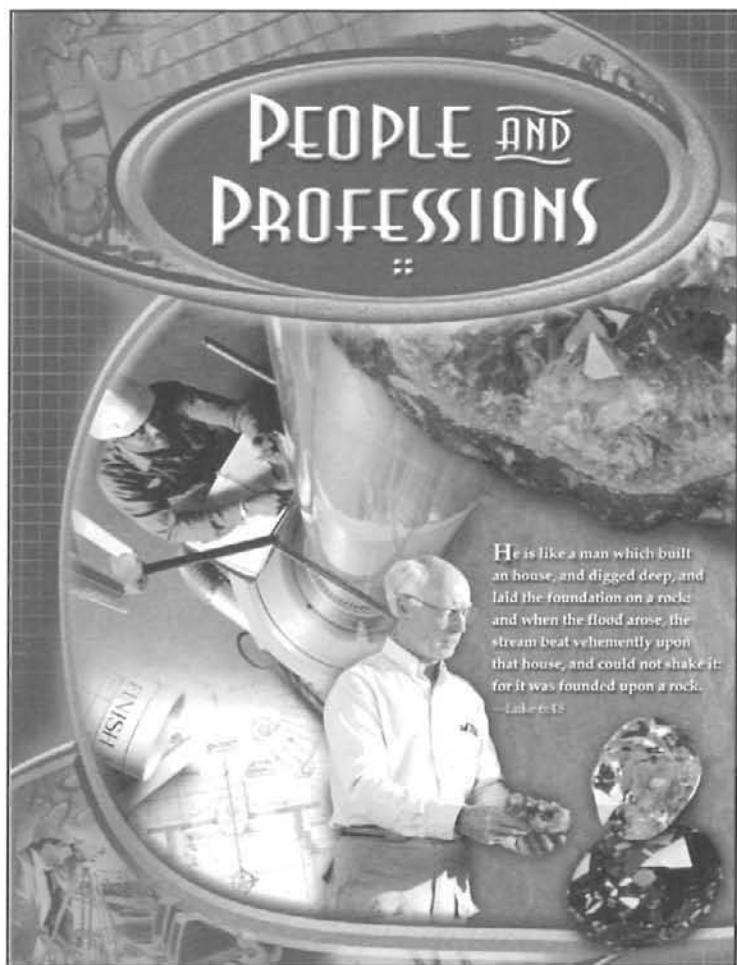


Geologist and Engineer

The letters *g* and *e* will be reviewed in this unit, and the occupations of the geologist and the engineer have been chosen to represent them. Students interested in earth science or construction will be challenged by the introductory and optional activities in these lessons.

Be sure to read the entire unit to prepare yourself for teaching, especially noting the calligraphy lesson. Time spent now in practicing the calligraphy skills will add greatly to your proficiency when teaching the lesson.





Materials and Preparation

Prepare:

- Handwriting lines on the chalkboard.
- The following words on the chalkboard.

geologist

engineer

Lesson Content

Introduction

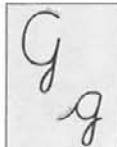
Introduce the unit—Direct attention to the words on the chalkboard. Elicit the meaning of the word *geologist* from its derivation, *geo* (earth) and *logos* (study). After discussing what an engineer does, ask the students to give examples of the kinds of things that engineers help to build. Tell the class to turn to worktext page 15, and ask a volunteer to read the verse aloud.

Relate the following information.

The rock in this verse pictures Christ as the safe, solid foundation for a person's life. You can find other Bible references to Christ as the Rock. In

Rock Hounds

name _____



Write the heading for each list. Then alphabetize each list of rocks.

Igneous
granite
pumice
basalt
obsidian

Sedimentary
conglomerate
shale
limestone
coal

Metamorphic
marble
slate
gneiss
quartzite

Igneous
basalt
granite
obsidian
pumice

Sedimentary
coal
conglomerate
limestone
shale

Metamorphic
gneiss
marble
quartzite
slate

16

Use with Lesson 12.

Ephesians 2:20, Paul describes the Lord Jesus as the chief Cornerstone, the most important part of the church's foundation. (BAT: 3e Unity of Christ and the church) For unbelievers, Matthew 21:44 refers to Christ as the crushing stone of judgment. (BAT: 7a Grace)

Direct attention to worktext page 16—Ask a student to read the information at the top of the page. Remind the students of the three basic types of rock: igneous (formed from cooled lava), sedimentary (formed in layers under water), metamorphic (formed when other rocks are changed by heat or pressure).

Skill development

Review the formation of g—Verbalize the direction of each stroke as you write the letters on the chalkboard. Point out that uppercase *g* begins at the one o'clock position. Tell the students to note that uppercase and lowercase *g* connect to the letters that follow them.



*Begin at one,
Swing around to three,
Drop low and loop.*

g

*Swing up and around to one,
Retrace and swing around to lock,
Drop low and loop.*

Demonstrate the writing of lowercase g in pairs—Point out that the pencil is not lifted between letters. Tell the class to air-trace the letters, and then allow students to write the following words on the chalkboard.

giggle bragging beggar luggage

Demonstrate alternate styles of writing the letter g (optional).

G G G

Guided practice

Guide the completion of worktext page 16—Ask volunteers to read the names of the rocks listed. If time permits, give the following information about the less familiar rocks.

pumice—a porous, lightweight volcanic rock

basalt—a hard, dense, dark volcanic rock

obsidian—a black, lustrous volcanic glass

conglomerate—a loosely cemented rock of pebbles and gravel

gneiss—a banded rock in which the minerals are arranged in layers

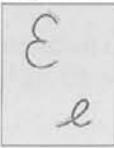
Instruct the students to write each heading on the appropriate lines and alphabetize each list of rocks under its heading.

Optional activity

Direct a writing activity—Review the difference between rocks and minerals. (See the Optional Activity in Lesson 8.) Tell the students that this activity is about rocks—specifically sedimentary rocks. Explain that one of the most fascinating features of sedimentary rocks is the fossils they sometimes contain. Direct each student to write a sentence or two explaining what Christians believe about the fossils in sedimentary rocks. (*During the Flood, layer after layer of material was deposited under the water. Many animals were trapped in these layers of deposited material, and fossils formed. Today we call these layers of deposited material containing fossils sedimentary rock.*)

Time Line Engineering

name _____



Engineering is the science of making power and materials work for man. Civil engineering, the oldest branch of this science, is concerned with turning power and materials into modern conveniences. Civil engineers plan buildings, bridges, streets, railroads, tunnels, canals, and airports.

Write the dates and the corresponding engineering projects on the lines below in descending chronological order.

1209	London Bridge	1869	Suez Canal
1889	Eiffel Tower	1000 B.C.	Solomon's Temple
80 Colosseum		3000 B.C.	Great Pyramid
312 B.C.	Appian Aqueduct	1965	Verrazano-Narrows Bridge
432 B.C.	Parthenon	1883	Brooklyn Bridge

A.D. 2000
A.D. 1500
A.D. 1000
A.D. 500
B.C.
300 B.C.
200 B.C.
100 B.C.
1000 B.C.
1200 B.C.
2000 B.C.
3000 B.C.

1965 Verrazano-Narrows Bridge
1889 Eiffel Tower
1883 Brooklyn Bridge
1869 Suez Canal
1209 London Bridge
80 Colosseum
312 B.C. Appian Aqueduct
432 B.C. Parthenon
1000 B.C. Solomon's Temple
3000 B.C. Great Pyramid

Use with Lesson 13. 17

6. This can be a very tall building or a part of a tall building. (*tower*)
7. This pipe or channel is used to carry water a long distance. (*aqueduct*)

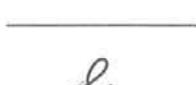
Direct attention to worktext page 17—Ask a student to read the description of civil engineering at the top of the page.

Skill development

Review the formation of e—Verbalize the direction of each stroke as you write the letters on the chalkboard. Point out that the uppercase letter begins at one o'clock and that the uppercase and lowercase e connect to letters that follow.



*Begin at one,
Swing around toward
three,
Swing around to five.*



*Swing up toward one and
around to five.*

Demonstrate the writing of lowercase e in pairs—Point out that the pencil is not lifted between letters. Tell the class to air-trace the letters, and then ask volunteers to write the following words on the chalkboard.

levees Greek engineer

Demonstrate alternate styles of writing the letter e (optional).



Guided practice

Guide the completion of worktext page 17—Ask students to read the list of engineering projects. Complete the time line together. Circulate among the students to make sure that they write the date and project on the correct line. Also check letter formation, alignment, and spacing.

Materials and Preparation

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Lead a game—As you read the following descriptions, tell the students to guess the name of each of these structures.

1. This solid object has a flat base and four sides shaped like triangles that meet at the top. (*pyramid*)
2. This is a man-made body of water that connects two or more bodies of water. (*canal*)
3. This important structure is built across an obstacle so that people can cross to the other side of the obstacle. (*bridge*)
4. Used for public entertainment or assemblies, this is a large amphitheater. (*colosseum*)
5. This is a kind of building that is used for worship. (*temple*)

Optional activity

Direct a writing activity—Tell the students to read about the building of Solomon's temple in I Kings 6:1-10. Help each student to figure out the size of the temple and its porch by converting the units of cubits to feet. Explain that to change cubits to feet, multiply by 1.5. Also explain that *threescore* means 3 times 20, or 60. Direct him to rewrite verses two and three on handwriting paper, using the answers he obtained in feet rather than in cubits. Then tell

each student to write one sentence that describes each of the following parts of the temple.

1. windows (*Solomon made windows of narrow lights.*)
2. chambers (*He built chambers against the walls of the house round about.*)
3. house (*The house was built of stone covered with boards and beams of cedar.*)

(Other answers are acceptable.)

Lesson 14

A Geological Engineer

Worktext, page 18

A Geological Engineer

Handwriting tips

Descenders should not go below the midline.

geologist



A geological engineer explores the ground for mineral deposits. You are not a geological engineer, but you can explore the ground for rocks and minerals too. You will need a few tools for your exploration.

Write the name of each tool.



mineral hammer



chisel



magnifying glass



pocket magnet



streak plate



pocketknife

18

Use with Lesson 14.

name _____

Write the letters and words. Remember to write descenders correctly.

g g

g g

geologist

e e

e e

engineer

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Materials and Preparation

Prepare:

- Two handwriting lines with a dotted midline on the chalkboard.
- The following sentence on the first handwriting line.
George and Ed are geological engineers.

Lesson Content

Introduction

Create interest in today's lesson—Discuss the wide variety of jobs that a geologist can do. Ask how a geologist would make an important contribution to each situation listed below:

1. military programs (*make maps and air photos of certain regions*)
2. earth exploration (*locate deposits of oil, gas, precious stones, metals*)
3. ocean exploration (*locate deposits of oil, gas, sulphur*)
4. industry (*locate fuel sources*)
5. mining (*search for minerals and efficient ways to remove them*)

Skill development

Review the formation of g and e—Remind the students that the letters g and e connect to the letters that follow.

Focus on the handwriting tip on worktext page 18—Ask a student to read the handwriting tip aloud. Direct attention to the sentence on the chalkboard. Point out that the uppercase ascenders do not extend to the top line; they come within $\frac{1}{16}$ " of the top line. Descenders extend to $\frac{1}{16}$ " below the base line. Instruct a student to rewrite the sentence on the second handwriting line. Remind the student to avoid ascender-descender collision.

Guided practice

Focus on writing the letters g and e—Refer the students to the model letters and words at the top of worktext page 18. Instruct them to practice the letters and words on the lines provided.

Guide the completion of worktext page 18—Allow volunteers to read the paragraph and the name of each tool. Discuss the possible uses of each tool before instructing the students to complete the page.

Optional activity

Direct a writing activity—Review the fact that a geological engineer explores the ground for mineral deposits. Point out that this means that a geological engineer is concerned with the strength, permeability, and compactability of materials comprising the mineral deposits. Direct each student to look up the meaning of any of these terms that he does not know. Then direct him to write a sentence or two that tells why the geological engineer would want to

know these qualities about the soil in connection with the selection of locations for large buildings, roads, railroads, bridges, dams, river and ocean piers, and harbor breakwaters. (*Each of these constructions depends on a solid foundation [strength]. They also depend on materials that do not allow much water to pass through [permeability] to erode the foundation. Finally, they depend on materials that do not pack or press together [compactability] so that they will not sink.*)

Lesson 15

Bridge Building

Worktext, page 19

Bridge Building

name _____

The Brooklyn Bridge was completed in 1883, fourteen years after construction on it had begun. At the time of its construction, no larger suspension bridge had ever been built. Its designer, John Roebling, did not live to see it completed. He died in 1869, only one year into construction.

His son, Washington Roebling, became chief engineer of the bridge. But he, too, became seriously ill and could not leave his bed. Refusing to quit, he set up a telescope in his bedroom and watched the construction process, sending orders and directions to the foremen and engineers at the site.



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Write the facts about the Brooklyn Bridge on handwriting paper.

- The Brooklyn Bridge connects Brooklyn and Manhattan.
- It was the largest suspension bridge in the world when it was completed in 1883.
- The bridge's span over the river is 1595 feet.
- Towering 276 feet high, the bridge hangs from steel cables, some of them almost 16 inches thick.
- There are four cables, each one weighing 173,208.6 pounds.
- The total cost of its construction was 15 million dollars.

Use with Lesson 15.

19

Self-evaluation	s n
Posture	
Paper Positioning	
Pencil Hold	
Letter Formation	
Alignment	
Slant	
Spacing	
Neatness	

Handwriting improvement

Materials and Preparation

Have available:

- Handwriting paper for each student.

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Relate the following information.

One of the most interesting kinds of bridges is the suspension bridge. It hangs on cables that are fastened to high towers. A long bridge of this type may have cables more than three feet thick, composed of thousands of twisted steel wires; but surprisingly, it costs less to build than an ordinary bridge. A suspension bridge is a beautiful sight, especially with the sun gleaming on its bright cables. If you've ever walked across a small suspension bridge and felt it wobble under your feet, you'll understand its one disadvantage: it tends to sway in the wind. The Mackinac Bridge connecting the two peninsulas of Michigan is a famous example of a suspension bridge. Another famous suspension bridge is the Brooklyn Bridge in New York.

Direct attention to worktext page 19—Ask a student to read the information about the Brooklyn Bridge at the top of the page.

Skill development

Review the formation of g and e—Choose several students to write the letters on the chalkboard as you verbalize the stroke descriptions. Ask how these uppercase letters are alike. (*They both begin at one o'clock and connect to letters that follow.*) Allow students to write the following statements on the chalkboard.

Dependability is the greatest ability.

Keep on keeping on.

Finish the job.

Assessment

Guide the completion of worktext page 19—Allow volunteers to read the directions and the facts about the Brooklyn Bridge. Encourage the students to do their best as they write the facts on handwriting paper. Remind them that after writing the facts they will evaluate their own handwriting on the chart.



You may want to use the evaluation form in the Appendix with this lesson. Be aware that the back of this page will be used in the next lesson on calligraphy.

Optional activity

Direct a writing activity—Relate the following information.

In his biography about Dr. Bob Jones Sr., R. K. Johnson called the evangelist a “Builder of Bridges” because Dr. Jones frequently quoted a poem entitled “Building the Bridge for Him.” This poem tells about a different kind of bridge builder. It describes a person who “builds bridges” to others in order to lead them to Christ.

Direct each student to write a paragraph describing a way that he could “build a bridge” to an unsaved person that would point him to Christ.

Lesson 16

Calligraphy Letters *m* and *n*

Worktext, page 20

Calligraphy Letters *m* and *n* name _____

Calligraphy Tips

Use the most space between two straight strokes; use a little less space between a straight and a curved stroke; and use the least space between two curved strokes.

Copy the practice strokes.

III
= =
CCC
WW
==

Write the letters *m* and *n*.

m m m
n n n



Use with Lesson 16.

Lesson Content

Introduction

Review some of the terms listed on worktext page 104—Direct the students to turn to the Calligraphy Glossary on page 104 in their worktexts. Review the meaning of the terms related to the guide sheet. (*the slant lines, the x-height, and these two guidelines: base and body lines*) Then review the reason for using the guide sheet. (*to control the height and slant of each stroke*)

Skill development

Review some of the tips listed on worktext pages 105-6—Distribute the pen and a piece of typing paper to each student. Instruct him to lay these aside for later use. Direct attention to the Calligraphy Tips on pages 105-6 in the worktext. Read and demonstrate the tips about proper body position, paper position, and pen hold.

Read and demonstrate the tip about correct pen angle. Remind the students to draw a small box with a diagonal line from the top right corner to the bottom left corner to help them determine the 45° angle of the chisel point to the horizontal edge of the paper.

Review the instruction about breath control—Explain to the students that if they either hold their breath or breathe out when they write, they will have smoother-looking letters.

Review the practice strokes—Using the overhead pen, write the practice strokes on the lines on the overhead or white board.

Demonstrate the formation of lowercase *m* and *n*—Write the letters on the lines on the transparency, verbalizing the direction of each stroke as you write. Point out that both letters are made with one continuous stroke and that the curves are only on the tops of the letters. Point out to the students that the letters should not connect to the letters that follow.

Materials and Preparation

Have available:

- A chisel-point pen for each student.
- A guide sheet for each student.
- A piece of typing paper for each student.
- A transparency of the lowercase guide sheet.
- An overhead projector.
- An overhead pen.



*Short diagonal right and drop,
Retrace and swing right,
Drop,
Retrace and swing right,
Drop and curve.*



*Short diagonal right and drop,
Retrace and swing right,
Drop and curve.*

Demonstrate the spacing of letters within a word on worktext page 106—Direct the students to the Calligraphy Tips on page 106. Read and demonstrate tip 1 under spacing with the following examples.



1. Use the most space between two straight strokes in a word.



2. Use a little less space between a straight and a curved stroke.



3. Use the least space between two curved strokes.



Guided practice

Direct handwriting on worktext page 20—Review the calligraphy tip at the top of the page. Direct attention to the practice strokes. Then refer the students to the letter models on the lines at the bottom of the page. Remind them of the procedures for practicing the letters at the bottom of the page.

1. Note the arrow that indicates the direction of each stroke.
2. Trace the black letter with your finger.
3. Trace the gray letters with your pen.

Walk around the classroom to check that the students are making the correct strokes, both for practice strokes and for letter formations. Look for common errors.



Refer to the Calligraphy Introduction on pages xxi-xxix.

Continued practice

Direct practice with typing paper and a guide sheet—Remind the students to use the side of the guide sheet labeled “Lowercase Guide Sheet.” Tell them to write the practice strokes, new letters, and the letters that were taught in the previous calligraphy lessons (*c, a, o, and e*).

Write the word *ocean* on the overhead for the students to see. Tell them that this word will provide good review and practice in word formation. Be sure to collect the pens when the students have finished.

PEOPLE AND PROFESSIONS

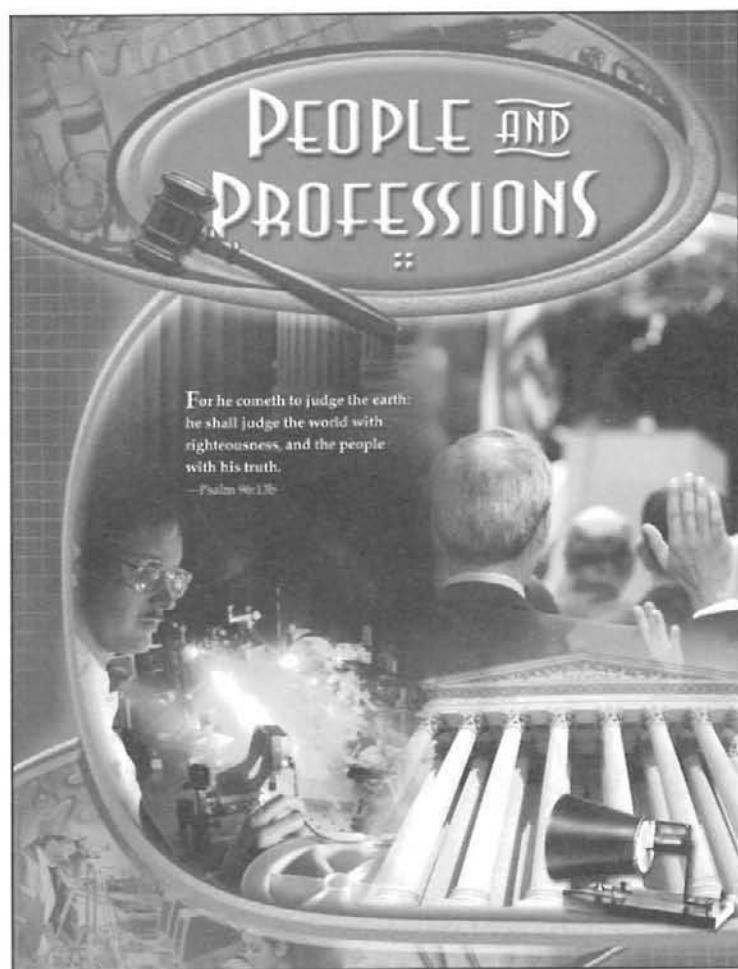


Inventor and Judge

The subject of inventors and their inventions is a fascinating one, especially to the creative mind of a child. On the other hand, some students may have never considered what a judge does, or God's role as judge in our lives. While reviewing the letters *i* and *j*, the class will examine the occupations of inventor and judge.

The last lesson in this unit is a calligraphy lesson and will require some advance preparation on your part. Please take time to practice the strokes required for introducing the new calligraphy letters.

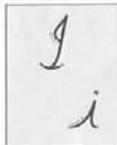




For he cometh to judge the earth:
he shall judge the world with
righteousness, and the people
with his truth.
—Psalm 96:13b

Inventors and Their Inventions

name _____



An inventor uses ideas and materials to make something that did not exist before. He is curious about the world around him and strives to meet the needs he sees in the world.

Put the dates in order to make a chronological list of inventions and inventors.

1876—Alexander Graham Bell	1846—Walter Hunt
1903—Wright Brothers	1839—Louis Daguerre
1793—Eli Whitney	1845—Elias Howe



cotton gin



photography



sewing machine



safety pin



telephone



airplane

1. 1793—cotton gin
Eli Whitney

2. 1839—photography
Louis Daguerre

3. 1845—sewing machine
Elias Howe

4. 1846—safety pin
Walter Hunt

5. 1876—telephone
Alexander Graham Bell

6. 1903—airplane
Wright Brothers

22

Use with Lesson 17.

Materials and Preparation

Prepare:

- Handwriting lines on the chalkboard.

Lesson Content

Introduction

Introduce the unit—Direct attention to worktext page 21. Point out the two occupations to be studied in this unit: inventor and judge. Ask a student to read the unit verse. Choose students to respond to the following questions.

1. To whom does *he* refer in the verse? (*God*)
 2. When will He come to judge the earth? (*Only He knows; at the end time.*)
 3. What two kinds of judgment are there? (*for the saved—his works; for the unsaved—his unbelief*)
- Discuss personal implications as time permits. (BATs: 1b Repentance and faith; 4a Sowing and reaping)

Create interest in the lesson—Cite examples of well-known inventions (*the telegraph, the airplane, the telephone*) and ask the students to tell what their favorite inventions are. Direct attention to worktext page 22 and ask a student to read the information at the top of the page.

Skill development

Review the formation of *i*—Verbalize the direction of each stroke as you write the letters on the chalkboard. Remind the students that lowercase *i* is dotted after the entire word is written. Point out that uppercase *I* connects to letters that follow.



***Swing around and up,
Drop and swing left,
Retrace and sweep up.***



***Swing up,
Drop low and curve,
Dot.***

Demonstrate the writing of *i*—Tell the class to air-trace the letters, and then allow volunteers to write the following words on the chalkboard.

Indiana invent inventions

Demonstrate alternate styles of writing the letter *i* (optional).

I J G

Guided practice

Guide the completion of worktext page 22—Encourage the students to write neatly as they complete the page independently.

Optional activity

Direct a writing activity—Relate the following information.

The safety pin was invented in only three hours by Walter Hunt. He did this to pay a fifteen-dollar debt he owed to J. R. Chapin, a draftsman. Hunt not only

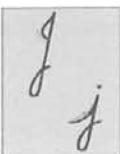
discharged the debt he owed to Chapin but also earned a small sum as Chapin paid him four hundred dollars for all rights to the invention. Here is a small portion of the 1849 patent for the safety pin.

Be it known that I, Walter Hunt, of the city, county, and State of New York, have invented a new and useful Improvement in the Make or Form of Dress-Pins, of which the following is a faithful and accurate description.

The distinguishing features of this invention consist in the construction of a pin made of one piece of wire or metal combining a spring, and clasp or catch, in which catch, the point of said pin is forced and by its own spring securely retained. They may be made of common pin wire, or of the precious metals.

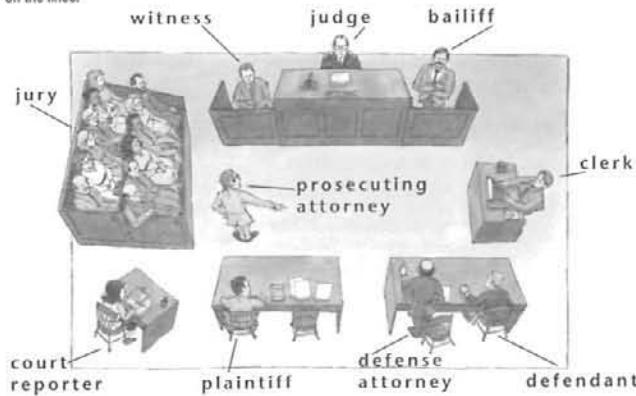
Direct each student to think of his own invention and then to write a patent for his invention.

Order in the Court name _____



A judge is a public official who hears and decides cases in a court of law. The judge decides the questions of law in a trial, while the jury decides the questions of fact. The judge in a trial also pronounces the sentence of the court.

Write the titles of the people in the courtroom in alphabetical order on the lines.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Use with Lesson 18.

25

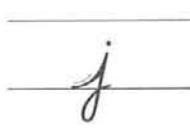
3. plaintiff—brings the complaint to the court
4. defendant—the person against whom the accusation is made
5. prosecuting attorney—represents the plaintiff
6. defense attorney—represents the defendant
7. witness—gives evidence at the trial
8. judge—hears and decides the case
9. bailiff—keeps order in the courtroom during the trial
10. jury—hears the evidence and gives a verdict

Skill development

Review the formation of *j*—Verbalize the direction of each stroke as you write the letters on the chalkboard. Remind the students that lowercase *j* is dotted after the entire word is written. Point out that both uppercase and lowercase *j* connect to letters that follow.



*Swing around and up,
Drop low and loop.*



*Swing up,
Drop low and loop,
Dot.*

Demonstrate the writing of the letter *j*—Tell the students to air-trace the letters, and then allow volunteers to write the following words on the chalkboard.

judicial justice Judge Allen

Demonstrate alternate styles of writing the letter *j* (optional).



Guided practice

Guide the completion of worktext page 23—Instruct the students to number the titles in the diagram in alphabetical order. Then direct them to complete the page independently.

1. clerk—keeps the records of the court
2. court reporter—records every word spoken at the trial

Optional activity

Direct a writing activity—Make a copy of the following statements for each student. Ask the students to tell what they think a kangaroo court is. Then direct them to copy on handwriting paper the following statements of what different history books think a kangaroo court is.

1. An unauthorized or irregular court conducted with a disregard for legal rights and procedures; as a mock court held by prisoners in a jail, or an irregularly conducted court in a frontier district.

2. A term that arose in Kansas or Ohio to describe trials held by pioneer judges traveling (leaping) from place to place.
3. A later name for lynching trials, so named because the judges would fling themselves on the ground around the accused.
4. A mock trial held in a jail in 1870.

Lesson 19

Every Work into Judgment

Worktext, page 24

Every Work into Judgment

name _____

Write the letters and words.

Handwriting Tip:
Cross and dot letters
after writing the entire
word.

inventor



Write the verses on handwriting paper.

"And he made in Jerusalem engines,
invented by cunning men, to be on
the towers and upon the bulwarks,
to shoot arrows and great stones
withal."

II Chronicles 26:15a



"For God shall bring every work
into judgment, with every secret
thing, whether it be good, or whether
it be evil."

Ecclesiastes 12:14

Handwriting practice: Write I & J

Materials and Preparation

Have available:

- A Bible for each student.
- Handwriting paper for each student.

Lesson Content

Introduction

Direct a Bible study—Tell the students to turn in their Bibles to II Chronicles 26. After pointing out verse 1, which tells that Uzziah became king at sixteen years of age, ask a volunteer to read verses 9–15, the story of how Uzziah defended Jerusalem. Instruct the students to read verses 16–21 silently; then discuss God's judgment on Uzziah's pride. (BAT: 4a Sowing and reaping)

Skill development

Focus on the handwriting tip on worktext page 24—Remind the students that lowercase *i* and *j* are dotted after the entire word is written. Point out that both uppercase and lowercase *i* and *j* connect to letters that follow.

Guided practice

Focus on writing the letters *i* and *j*—Direct the students to the letters and words at the top of worktext page 24. Remind them to cross and dot the letters after writing each word on the lines provided.

Guide the completion of worktext page 24—Ask two students to read the verses. Instruct the students to use correct posture, paper positioning, and pencil hold as they write the verses on handwriting paper.

Optional activity

Direct a writing activity—Direct each student to read the account of God's judgment on the city of Babylon in Daniel chapter 5. Explain that in spite of man's efforts in building a strong city, God's will was done, and the Medes and Persians were able to take the city. Direct each student to write verses 25 through 28.

The Wizard of Menlo Park

In 1868, Thomas Edison invented the electric vote-recording machine. After Congress refused to use the invention, Mr. Edison promised himself that he would never again invent anything that was not wanted or needed. Sixty years later, Thomas Edison had patented more than eleven hundred inventions.



name _____

Self-evaluation	
Posture	x n
Paper Positioning	
Pencil Hold	
Letter Formation	
Alignment	
Slant	
Spacing	
Neatness	

excellent good satisfactory improved improvement

Write the paragraph on handwriting paper.

Thomas Edison's favorite invention was the phonograph. He invented it in 1877 in his Menlo Park laboratory. The phonograph record was a metal cylinder covered with tin foil. A needle recorded the sound waves as small dents in the tin foil. Another needle played back the sounds. The first words recorded and played on Edison's phonograph were "Mary had a little lamb."

Use with Lesson 26.

25

Materials and Preparation

Have available:

- Handwriting paper for each student.

Prepare:

- Handwriting lines on the chalkboard.
- The following sentence on the chalkboard.

Thomas Edison patented more than eleven hundred inventions.

Lesson Content

Introduction

Introduce Thomas Edison—Read the following information to the students.

Thomas Edison, born in 1867, was a curious, questioning child who liked to experiment. He went to school when he was seven years old. He stayed there for only three months, irritating the teacher with his constant questions. His mother, who had once been a schoolteacher, decided to teach him at

home. By the time he was twelve years old, Thomas had a job selling newspapers and snacks on a train. He printed his own newspaper in his spare time on the train and experimented with chemicals in the baggage car. Unfortunately, a stick of phosphorus burst into flames one day, setting the car on fire, and young Edison lost his job. He never gave up experimenting, however, and eventually became a famous inventor.

Direct attention to worktext page 25—Ask a student to read the information at the top of the page.

Skill development

Review the formation of i and j—Allow several students to write the letters on the chalkboard as you verbalize each stroke. Remind the students that lowercase *i* and *j* are dotted after the entire word is written. Ask how the uppercase and lowercase letters are alike. (*They all connect to letters that follow them.*)

Review the components on the self-evaluation chart.

posture	alignment
paper positioning	slant
pencil hold	spacing
letter formation	neatness

Direct attention to the sentence written on the chalkboard—Point out the most common errors in alignment, slant, and spacing.

Review the indentation of paragraphs—Point out that paragraphs are indented to set them apart from the rest of the reading material and to make them easier to read.

Assessment

Guide the completion of worktext page 25—Direct a student to read the instructions and the paragraph about the phonograph. Instruct the students to complete the page independently.



You may want to use the evaluation form in the Appendix with this lesson. Be aware that the back of this page will be used in the next lesson on calligraphy.

Optional activity

Direct a writing activity—Read the following paragraph about the phonograph to the students and allow them to give the answers to complete the statements. As the students give the answers, write each one on the chalkboard. Then direct the students to write the list on handwriting paper.