

Communication Techniques in Practice

Unit: Soft Skills

Problem Area: Communication

Lesson: Communication Techniques in Practice

- **Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:

- 1 Use standard terms to define communication and drawing.**
- 2 Demonstrate interpersonal communication.**
- 3 Demonstrate technical drawing.**

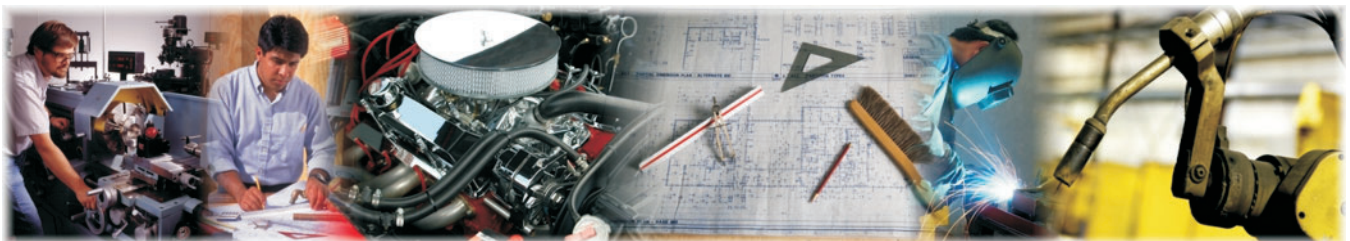
- **Resources.** The following resources may be useful in teaching this lesson:

“Definition of Interpersonal Communication,” *Allyn & Bacon Communication Studies*. Accessed June 10, 2010. <<http://www.abacon.com/commstudies/interpersonal/interpersonal.html>>.

“Interpersonal Communication,” *Wikipedia*. Accessed June 10, 2010. <http://en.wikipedia.org/w/index.php?title=Interpersonal_communication&oldid=315815079>.

“Multiview Orthographic Projection,” *Wikipedia*. Accessed June 10, 2010. <http://en.wikipedia.org/w/index.php?title=Multiview_orthographic_projection&oldid=317646218>.

“Technical Drawing,” *Wikipedia*. Accessed June 10, 2010. <http://en.wikipedia.org/w/index.php?title=Technical_drawing&oldid=317755996>.



“Wright Brothers Patent Plans 1908 Photograph,” *Wikipedia*. Accessed June 10, 2010. <http://en.wikipedia.org/wiki/File:Wright_brothers_patent_plans_1908.jpg>.

■ **Equipment, Tools, Supplies, and Facilities**

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials
- ✓ Set of construction blueprints drawings (or other engineering drawing)
- ✓ Collection of used cellular telephones (approximately one for every two students)
- ✓ Various examples of different types of technical drawings including technical sketches, isometric, construction blueprints, electrical schematics, orthographic projection, etc.
- ✓ Sketching and drafting tools (e.g., paper, grid paper, pencils, rulers, and erasers)

■ **Key Terms.** The following terms are presented in this lesson (shown in bold italics):

- ▶ artifacts
- ▶ computer-aided drafting (CAD)
- ▶ context
- ▶ interpersonal communication
- ▶ manual drafting
- ▶ non-verbal communication
- ▶ orthographic projection drawing
- ▶ pictorial drawing
- ▶ sketches
- ▶ technical drawing
- ▶ verbal communication

■ **Interest Approach.** Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Begin by engaging students in a conversation about what they did during the past weekend. Demonstrate interpersonal communication by taking time to converse with one student for about 1 to 2 minutes and by asking that person more detailed questions about his or her life or plans for the future. Continue similar conversations with several students for several minutes. Tell the class that what you have been doing is called interpersonal communication.

Next, show students a set of blueprints for the construction of a home or a set of working drawings for the manufacturing of a product. Let students look at the drawings to notice the details. Count the number of parts of the drawing (e.g., title block, legend, and notes) students can find. The object is for students to notice how unique a technical drawing is compared to other types of printed communication. Explain to students that the blueprint is an example of technical drawing and that it is another example of a communication technique that they will practice. Alternatively, display VM–F.

CONTENT SUMMARY AND TEACHING STRATEGIES

Objective 1: Use standard terms to define communication and drawing.

Anticipated Problem: What standard terms define communication and drawing?

- I. Terms in communication and drawing
 - A. **Interpersonal communication** is an information transfer between two or more people who know each other well. For example, two friends talking on the phone or a small group of students who are working on a project together engage in interpersonal communication.
 1. **Verbal communication** is the use of spoken words to communicate.
 2. Technical drawing is a type of **non-verbal communication**, which is the use of wordless communication (e.g., body language, sound, photographs, and symbols). It is important for the participants to know one another well and to have an understanding of each other. They also must understand the **context** of the communication—share the set of circumstances or facts that surround the particular situation in which the communication occurs.
 - B. **Technical drawing**, also known as drafting, is the process of making detailed standardized drawings. It is used by architects, designers, drafters, engineers, and other related professionals. In technical drawing, standard rules (e.g., line types and dimensioning) are used to create drawings that communicate complex physical **artifacts** (items created for a practical purpose), such as buildings and products. Technical drawing is used to explain ideas that are extremely difficult to explain with only written or spoken words. Types of technical drawing include the following:
 1. **Orthographic projection drawing** is the use of a two-dimensional (2-D) drawing to represent a three-dimensional (3-D) object. In each orthographic projection view of an object, only two dimensions are shown. Multiple views of

the same object are given to provide a complete description of the object. Standard views in orthographic projection are:

- a. Front
 - b. Top
 - c. Right side
 - d. Left side
 - e. Bottom
 - f. Rear
2. **Pictorial drawing** is the use of a three-dimensional (3-D) drawing to represent a three-dimensional (3-D) object. A pictorial drawing looks more like the actual object than an orthographic projection view. Some or all of the dimensions in pictorial drawings are inherently distorted. Many variations of the distortion are used to create pictorial drawings with desired visual effects.
 3. **Sketches** are drawings created by hand that are intended to quickly communicate rather than to serve as a detailed drawing. A sketch is the most basic form of technical drawing as it is convenient and quick but also may show technical detail that words cannot describe. A sketch is usually the first step in the process of recording the basic details for a more complex technical drawing.
 4. **Manual drafting** is making a technical drawing by hand using drawing instruments. Tools (e.g., a drafting table, pencils or pens, a t-square, a straight edge, a compass, and a ruler) are used to create lines, curves, dimensions, and notes to visually describe the object.
 5. **Computer-aided drafting (CAD)** uses computer technology to assist in the creation of computer files that describe the object. Typically the object is displayed on a computer screen while the CAD operator draws. CAD files may be printed, emailed, copied, and communicated in other electronic ways.

Teaching Strategy: Use VM–A to review the two types of communication the lesson addresses. Assign LS–A and facilitate a discussion about the meaning of the standard terms related to the communication process. Students can fill in LS–A as the discussion progresses.

Objective 2: Demonstrate interpersonal communication.

Anticipated Problem: What constitutes “good” interpersonal communication?

II. Demonstrating interpersonal communication

A. Examples

1. Having a phone conversation with a friend
2. Discussing a question with a teacher
3. Participating in a small group discussion
4. Interviewing for a job

- B. Members of an effective small group discussion practice good communication skills.
1. Effective group members are able to work together. Cooperation is important to the group's success. All group members work toward a common goal.
 2. Effective group members are able to help each other understand. When someone in the group is confused, the other group members take time to explain.
 3. Effective group members are able to contribute their fair share. Everyone in the group should be responsible for adding ideas and for contributing to the discussion.
 4. Effective group members are able to show respect to one another. Being able to listen and to respect other people's opinions is essential.

Teaching Strategy: Use VM–B as a projected display or distribute copies. Insure students understand what each image represents, and discuss various types of interpersonal communication that the images portray. Allow students to suggest other examples of interpersonal communication, and lead the discussion toward behavior that is needed for good interpersonal communication.

Next, have students participate in a small group discussion. Display VM–C, and ask students to brainstorm the skills people need for effective small group discussion. While leading the classroom discussion, point out that they (the students) are using these same communication skills to have the class discussion.

Organize students into small groups, and explain the topic they are to discuss is cellular telephones. Display VM–D. Explain there are two purposes for their discussions: to practice interpersonal communication skills while participating in the small group and to generate ideas that they will use to make a technical drawing.

Assign LS–B. Supervise the group discussions to insure students are staying on task, and facilitate their discussions if necessary. While the groups work on LS–B, display VM–E as a prompt for more ideas. After approximately 15 minutes, ask each group to present three ideas their group came up with to improve or change a cell phone. Then ask students which communication techniques were used during the discussion.

Objective 3: Demonstrate technical drawing.

Anticipated Problem: How are ideas to improve a cellular telephone communicated?

- III. Technical drawing examples
- A. Orthographic projection
 - B. Pictorial drawing
 - C. Sketch
 - D. Manual drafting

E. Computer-aided drafting (CAD)

Teaching Strategy: Display VM–F. Help students identify different types of technical drawing used in manufacturing by showing examples of each. Local manufacturers, construction companies, or engineers have drawings that may be available to borrow. Other resources are textbooks and the Internet.

Once students have a basic understanding of types of drawings, lead them into a discussion about cellular phones and what they like or dislike about the existing designs. Because they have thought about this already during their small group discussions, they should have opinions. Assign LS–C.

- **Review/Summary.** Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle.
- **Application.** Use the included visual master(s) and lab sheet(s) to apply the information presented in the lesson. Have students locate more communication techniques that occur in the manufacturing industry.
- **Evaluation.** Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

■ **Answers to Sample Test:**

Part One: Matching

1. i
2. h
3. c
4. a
5. e
6. j
7. g
8. d
9. f
10. b

Part Two: Completion

1. verbal communication
2. technical drawing
3. multiple

4. pictorial drawing
5. ideas
6. artifacts
7. context

Part Three: Short Answer

1. Answers will vary but should include three examples of interpersonal communication similar to the following:
 - a. Having a phone conversation with a friend
 - b. Discussing a question with a teacher
 - c. Participating in a small group discussion
 - d. Interviewing for a job
2. Effective group members contribute to a group in the following ways:
 - a. Work together: Cooperation is important to the group's success. All group members work toward a common goal.
 - b. Help each other understand: When someone in the group is confused, the other group members take time to explain.
 - c. Contribute their fair share: Everyone in the group should be responsible for adding ideas and for contributing to the discussion.
 - d. Show respect to one another: Being able to listen and show respect for other people's opinions is essential.
3. Five types of technical drawings are:
 - a. Orthographic projection
 - b. Pictorial drawing
 - c. Sketch
 - d. Manual drafting
 - e. Computer-aided drafting (CAD)

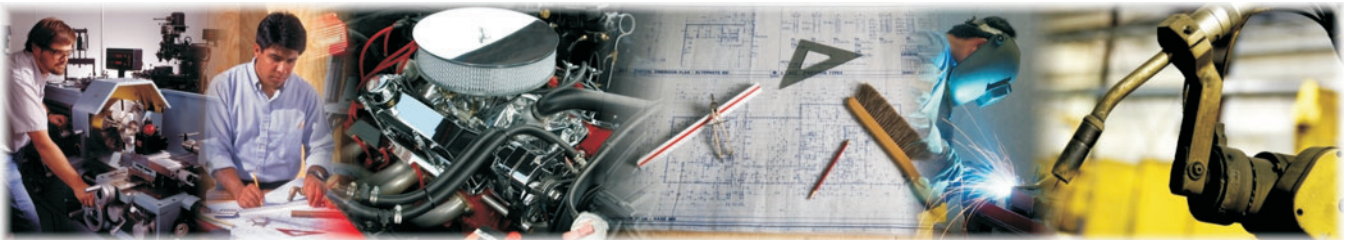
Communication Techniques in Practice

► Part One: Matching

Instructions: Match the term with the correct definition.

- | | |
|--------------------------------|------------------------------------|
| a. interpersonal communication | f. orthographic projection drawing |
| b. verbal communication | g. pictorial drawing |
| c. non-verbal communication | h. sketches |
| d. context | i. manual drafting |
| e. technical drawing | j. computer-aided drafting (CAD) |

- ____ 1. Making a technical drawing by hand using drawing instruments
- ____ 2. Drawings created by hand that are intended to quickly communicate rather than to serve as detailed drawings
- ____ 3. The use of wordless communication (e.g., body language, sound, photographs, and symbols)
- ____ 4. Information transfer between two or more people who know one another well
- ____ 5. The process of making detailed standardized drawings
- ____ 6. The use of computer technology to assist in the creation of computer files that describe the object
- ____ 7. The use of a three-dimensional drawing to represent a three-dimensional object
- ____ 8. The shared set of circumstances or facts that surround the particular situation in which the communication takes place
- ____ 9. The use of a two-dimensional drawing to represent a three-dimensional object
- ____ 10. The use of written or spoken words to communicate



► Part Two: Completion

Instructions: Provide the word or words to complete the following statements.

1. The use of written or spoken words to communicate is known as _____.
2. A sketch is a _____ created by hand that is intended to quickly communicate rather than to serve as a detailed drawing.
3. In each orthographic projection view of an object, only two dimensions are shown. _____ views of the same object are given to provide a complete description of the object.
4. A _____ looks more like the actual object than an orthographic projection view.
5. Technical drawing is used to explain _____ that are extremely difficult to explain with only written or spoken words.
6. In technical drawing, standard rules (e.g., line types and dimensioning) are used to create drawings that communicate complex physical _____, such as buildings and products.
7. The shared set of circumstances or facts that surround the particular situation in which the communication occurs is called _____.

► Part Three: Short Answer

Instructions: Answer the following.

1. List three specific examples of interpersonal communication.

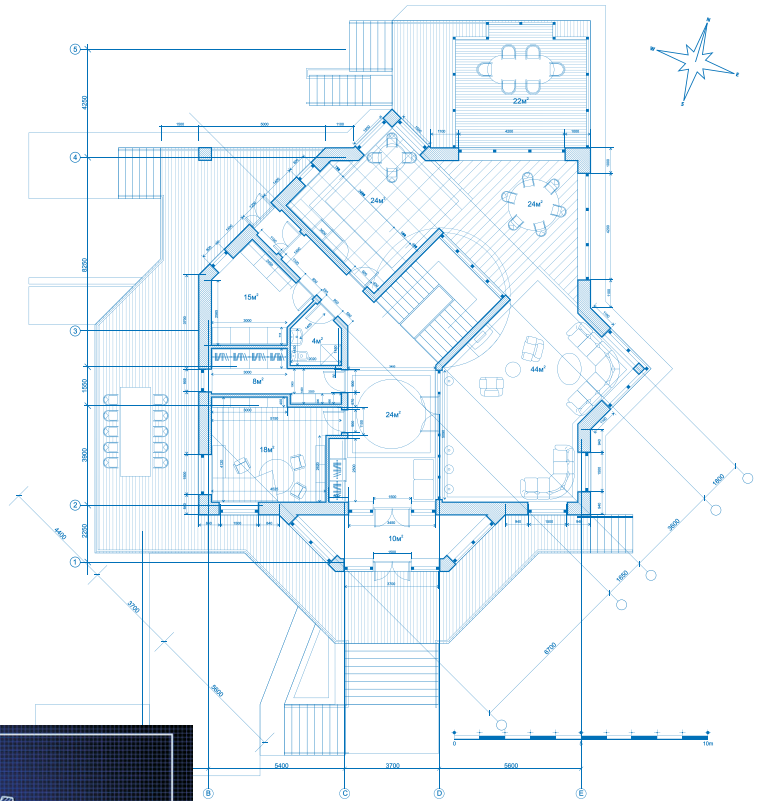
2. Effective group members contribute to a group in four ways. List those four ways.

3. List five types of technical drawings.

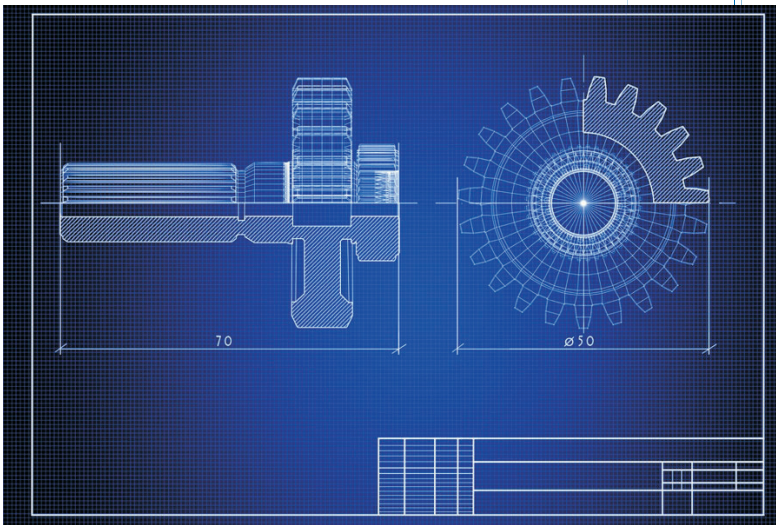
TWO COMMUNICATION TECHNIQUES: INTERPERSONAL AND TECHNICAL



Interpersonal Communication in a Business Meeting



Technical Drawing of a House Plan



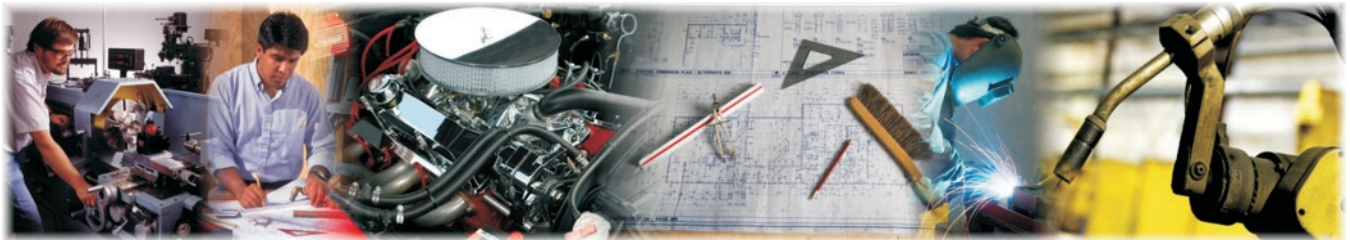
Technical Drawing of a Gear

EXAMPLES OF INTERPERSONAL COMMUNICATION



COMMUNICATION SKILLS FOR SMALL GROUP DISCUSSION

1. Work together.
2. Help others understand.
3. Contribute your fair share.
4. Show respect to others.

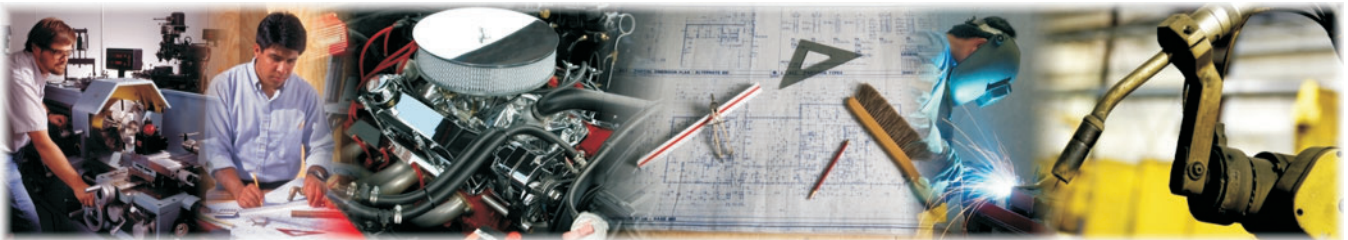


SMALL GROUP DISCUSSION— CELLULAR TELEPHONES

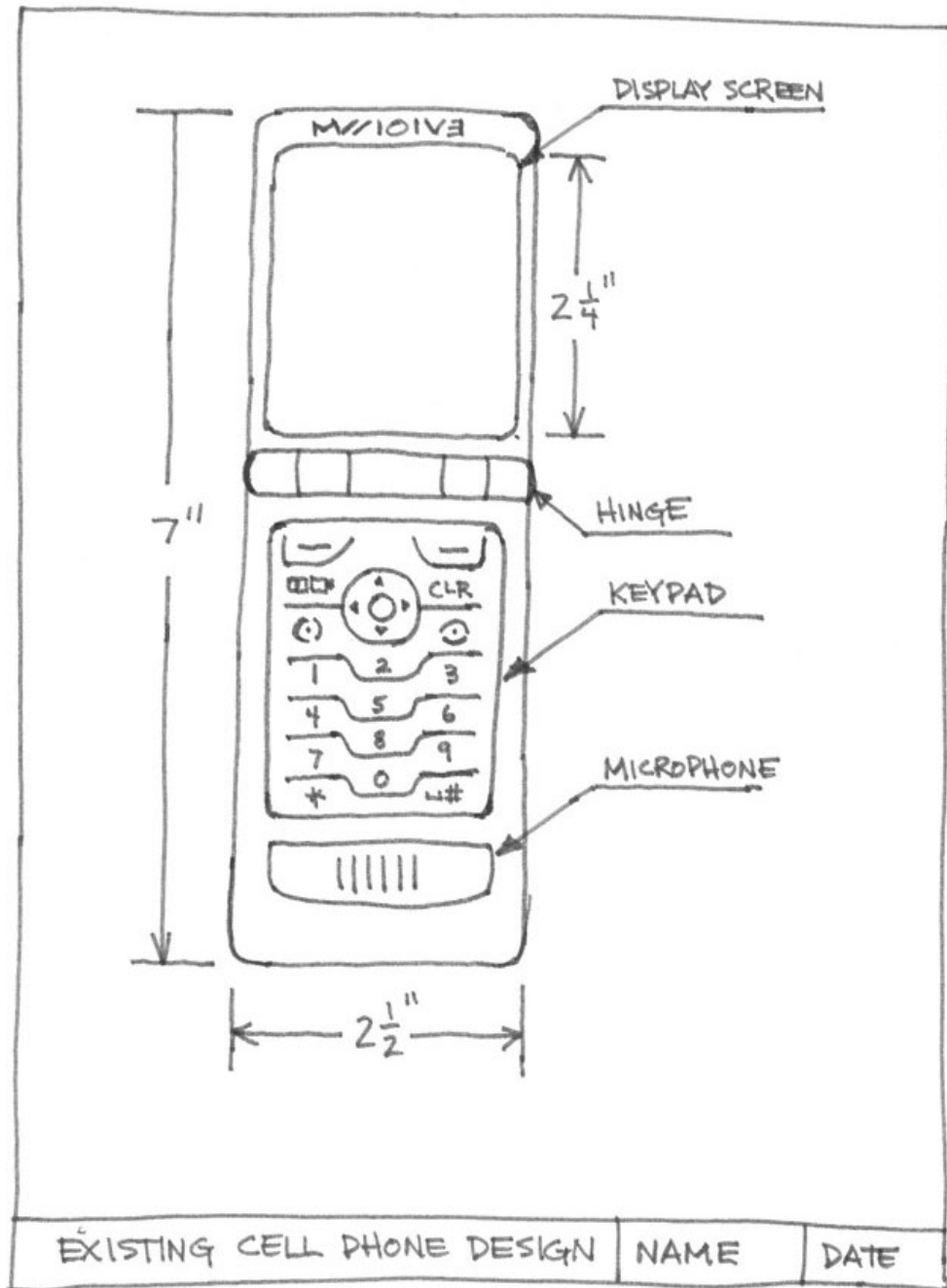
- ◆ **Discussion Question #1:** What are the best and worst features of a cellular phone?
 - **Process:** Each person in the small group explains one good feature and one bad feature of a cell phone.

- ◆ **Discussion Question #2:** How has the cell phone changed the way we communicate?
 - **Process:** Pair off with one other person in the group, and explain your opinion. After you have talked for a short time, go around the small group and ask each person to explain their partner's opinion.

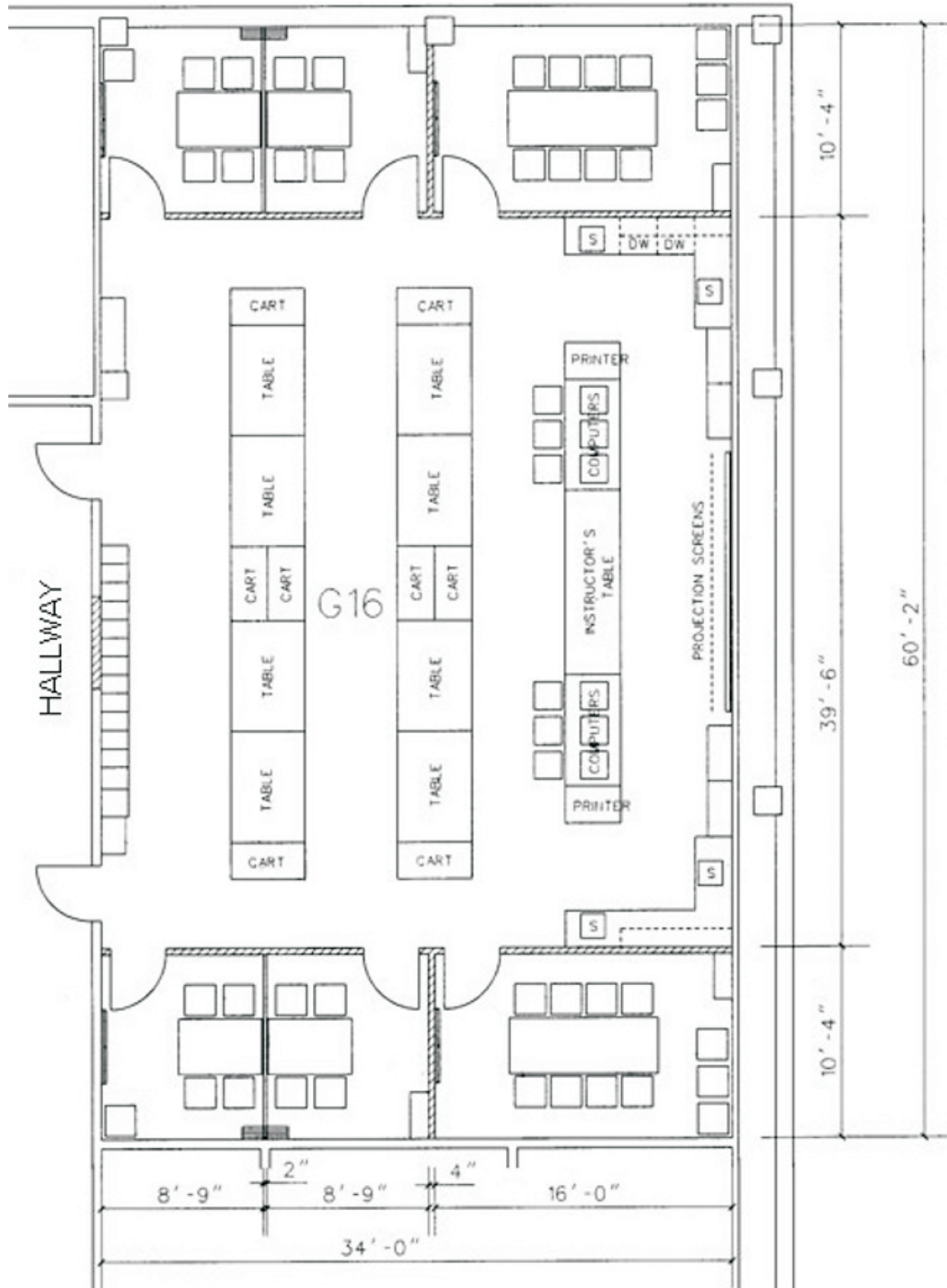
- ◆ **Discussion Question #3:** If you could change one thing about cell phones, what would it be?
 - **Process:** Go around the group and explain your ideas.
 - **Record the Ideas:** Each group member uses LS-C to record the group's ideas.



TECHNICAL SKETCH OF AN EXISTING CELLULAR TELEPHONE



SAMPLE CONSTRUCTION FLOOR PLAN



Communication Terms to Know

Purpose

The purpose of this activity is to become familiar with terms of standard communication techniques.

Objective

Use standard terms to define communication techniques.

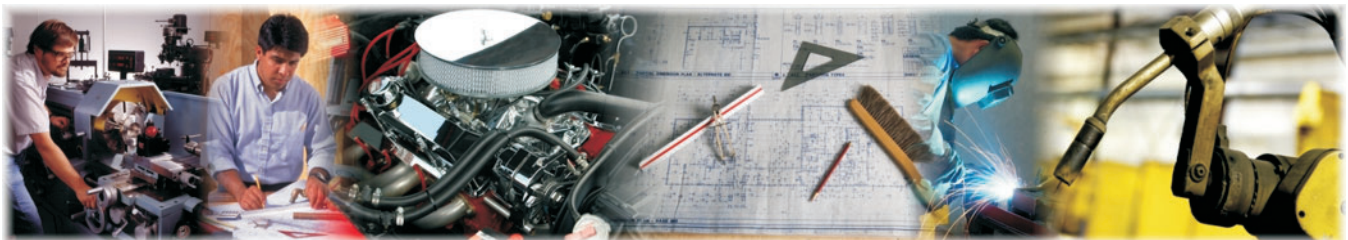
Materials

- ◆ lab sheet
- ◆ writing utensil

Procedure

1. Look at and/or listen to your teacher’s presentation about the standard terms used to describe the communication process.
2. Record the definition of each of the terms below.

Communication Terms to Know	
Interpersonal communication	
Verbal communication	



Non-verbal communication	
Context	
Technical drawing	
Orthographic projection	
Pictorial drawing	
Sketch	
Manual drawing	
Computer-aided drafting (CAD)	

Communication Terms to Know

Interpersonal communication	Communication that takes place between two or more people who know one another well
Verbal communication	The use of written or spoken words to communicate
Non-verbal communication	The use of wordless communication, including body language, sound, and symbols
Context	The environment and conditions in which communication occurs
Technical drawing	Drafting—The process of making detailed standardized drawings
Orthographic projection	The use of a 2-D drawing to represent a 3-D object
Pictorial drawing	The use of a 3-D drawing to represent a 3-D object
Sketch	A drawing created by hand that is intended to quickly communicate rather than to serve as a detailed drawing
Manual drafting	Creating a technical drawing by hand using drawing instruments
Computer-aided drafting (CAD)	Uses computer technology to assist in the creation of computer files that describe the object

Cellular Telephone Design Changes

Purpose

The purpose of this activity is to demonstrate interpersonal communication techniques during a small group discussion.

Objectives

1. Practice interpersonal communication skills (especially listening skills) while participating in the small group.
2. Record ideas generated in a small group discussion.
3. Generate ideas for use in a technical drawing.

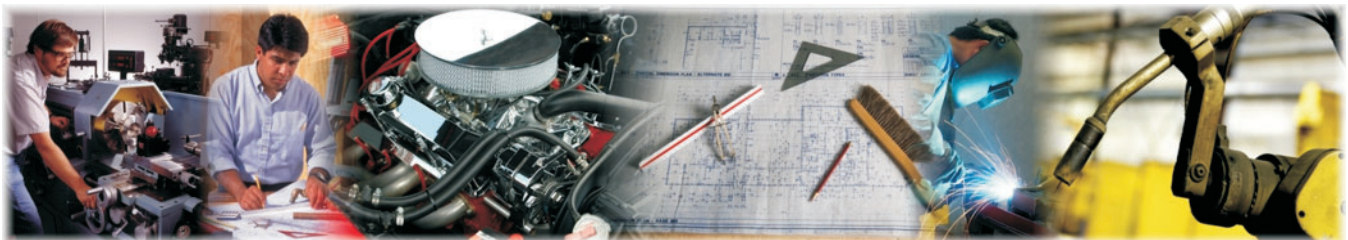
Materials

- ◆ lab sheet
- ◆ writing utensil

Procedure

1. Participate in a small group discussion about cellular telephone designs. You will have about 20 minutes to discuss changes and improvements to cellular telephones.
2. While you participate in your small group discussion, listen carefully to ideas that you hear, and record them in the left column below. Add more lines if necessary.
3. List communication techniques people use in the right column. You may note more than one communication technique per idea.

Ideas	Communication Techniques



Ideas	Communication Techniques

4. At the conclusion of the discussion, share the ideas you recorded with your group. After some sharing, select three ideas from the group to share during a class discussion.
5. Participate in a class discussion of ideas to change and improve cellular telephones.
6. Turn in your list to your instructor.

Before and After Drawing of a Cellular Telephone

Purpose

The purpose of this activity is to create two technical drawings.

Objectives

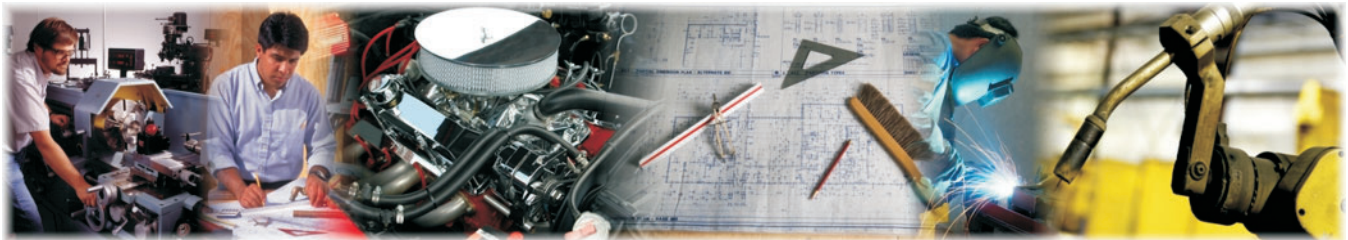
1. Draw an actual cellular phone as it currently exists.
2. Draw a second cellular phone that incorporates design changes to improve the phone.
3. Practice interpersonal communication skills (especially listening skills) while participating in the small group.
4. Record ideas generated in a small group discussion.
5. Generate ideas for use in a technical drawing.

Materials

- ◆ lab sheet
- ◆ writing utensil
- ◆ CAD software (optional)
- ◆ VM-E

Procedure

1. Participate in a discussion about the five ways in which a technical drawing may be prepared.
 - a. Orthographic projection
 - b. Pictorial drawing



- c. Sketch
 - d. Manual drafting
 - e. Computer-aided drafting (CAD)
2. A technical drawing is an effective way to communicate information (e.g., the design of a product, the design of a structure, electrical circuits, plumbing, heating and air conditioning, organizational charts, and many other technical data). Today, you are going to make two drawings: a cell phone as it exists and a cell phone with design changes to improve the phone. You may use your own phone or ask your teacher for a phone to copy.
 3. Pick up sketch paper or grid paper for both drawings.
 4. First sketch
 - a. Create a technical sketch of the cell phone design you have in front of you—as it currently exists. The sketch should be made full scale, so the drawing should be made the same size as the actual cell phone.
 - b. Make the drawing as neatly as possible using single stroke lines (as opposed to a series of shorter dashed lines, which is a more artistic method of sketching).
 - c. Use labels with arrowheads pointing to the different parts of the cell phone.
 - d. Lettering should be in all capital letters.
 - e. Basic dimensions of the phone should be given using standard dimensioning symbols.
 - f. See VM–E for a sample and/or consult additional resources for more guidance on creating a technical sketch.
 5. Second sketch
 - a. Create a technical sketch that describes your new, improved design of a cell phone. An alternative to sketching the design is to utilize CAD software to make a computer-aided draft of the design.
 - b. Include both labels and dimensions. Emphasis should be placed on communicating the proposed design as thoroughly as possible. Use labels and notes in the drawing to indicate your proposed design changes.
 6. Display your two sketches and then give the sketches to your instructor.
 7. Review all the designs classmates have prepared. Present your two designs to the class or to a small group as directed.