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ABSTRACT

This booklet is intended to help vocational teachers identify students who need remediation in one or more of the basic skills areas and to provide suggestions for assisting students in acquiring the basic skills they will need for employability. The guide provides information about basic skills in each of five areas (reading, writing, mathematics, science, and communication) and suggestions for teaching these skills in the content areas of vocational education. The final section provides four references. (KC)

BASIC SKILLS INSTRUCTION

A Vocational Teacher's Guide

INTRODUCTION

The purpose of this booklet is to help you, the vocational educator, identify students who need remediation in one or more of the basic skills areas and to provide suggestions for assisting students in achieving the basic skills they will need to be employable in your occupational area.

Basic skills instruction in Vocational Education **means mathematics, reading, writing, and science as offered in a vocational setting and related to the specific vocational program** of the student. It is the intent to give a student experience in and an understanding of all aspects of the occupation and industry that the student is preparing to enter (Pennsylvania Department of Education, February 1988).

All students want to do well in school. All students have a right to be able to read, communicate, and manage their financial resources themselves.

Students who feel good about themselves do better in vocational education, and the more success they have in your classroom, the more success they will have on the job!

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BASIC READING SKILLS IN VOCATIONAL PROGRAMS

All students in your vocational program will not have the basic reading skills they will need to be successful in the world of work. Students' reading skills have become a matter of national concern.

Reading remediation is primarily the responsibility of trained specialists. Teaching reading is a field unto itself. It requires a specific set of knowledge, skills, and attitudes just as your own occupational specialty does. If your students, needing reading remediation, are not already enrolled in such a program, encourage them to do so.

You can assist students in achieving the basic reading skills they will need on the job. Reading is an occupational skill. All jobs require that the worker read emergency signs, notices, paychecks, job orders, etc.

There is much you can do to help your students improve their skill in reading and **comprehending** what they read. Begin by reviewing an assessment of each student's reading level. The following might signal that a student needs assistance:

- Reluctance to read aloud.
- Failure to complete assignments on time.
- Problems with spelling.
- Inability to read the chalkboard, bulletin board, posters, handouts, or charts.
- Problems locating information in a manual or catalog.

TECHNIQUES TO IMPROVE READING SKILLS

You can supplement the remedial reading program by teaching your students the technical vocabulary of your occupational area. Try the following:

- Present the word to students both orally and in writing. Say it aloud more than once so students can hear it clearly. Write it down—on the chalkboard or in a handout so they can see how it looks. Have students **repeat** the word aloud several times and write it out themselves. This helps to fix the sound and spelling of the word in students' minds.

- Present the word to students using **real objects**. Tell students what a router is by pointing out the piece of equipment.

- Define the word by demonstrating the router and pointing out examples of rounded or decorative edges on doors, drawers, or plaques.

- If possible, **relate** the vocabulary word to a similar piece of equipment they have used in the home, e.g., plane.

- Help them utilize the words pictures around the vocabulary word to understand the word's meaning.

- Use the new word often. Don't use variations or slang.

- Have the student identify the new word in crossword puzzles, word searches, etc.

- Place a visible reminder of the word by **labeling** equipment, tools, and supplies.

BASIC WRITING SKILLS IN VOCATIONAL PROGRAMS

Vocational education places more emphasis on occupational training than on basic skills such as writing. The assumption is that students have already acquired the basic skills and now need to train for an occupation. Frequently, employees tell us that graduates can't write.

As all jobs require writing, a potential employee must be made aware of the importance of writing even simple messages carefully so that those who receive the messages will understand them. Writing is not a single skill. In vocational education, you must identify and then reinforce those writing skills students will need to succeed in your occupational program.

In general, most employers want workers who can

- **Write legibly.** Have students print or type if their longhand cannot be read.
- **Spell correctly.** Misspelled words create a negative opinion of the writer.
- **Capitalize.** Have students pay special attention to the use of capital letters in parts numbers, item codes, etc.
- **Use correct grammar.** Incorrect grammar creates a poor impression and can deliver the wrong message to the reader.

Even though writing may be only a small part of a worker's job, it is important. Being able to communicate clearly in writing can make an employee more valuable to the company.

TECHNIQUES TO IMPROVE WRITING SKILLS

- Provide **occupationally related writing assignments;** e.g., ask Auto Body students to write down the directions for removing a car's finish.

- Provide models of correctly written order forms, office memos, etc.

- Encourage students to write for free materials/catalogs related to their vocational training.

- Keep a list of words commonly misspelled by the class. Focus on one word a day.

- Have students draw from a box of index cards with samples of misspelled, unpunctuated, or uncapitalized sentences. Have them write the correct version on the back of the card.

- Give the students cards with scrambled paragraphs or sentences and ask them to write the correct message on the back of the card.

- Prepare a **deck of vocabulary word cards** for your occupational area. Have students write the meaning of each word in a sentence.

- Give frequent writing assignments.

- Use peer editing.

- Require written answers on tests to provide writing practice.

Some students reach secondary or postsecondary vocational education without the needed skills in math. Some students may not feel positive about their mathematical achievements. Since every job involves math in some way, helping students who need to improve their math skills is part of your responsibility as a vocational instructor. Intensive math remediation should be left to the specialists, but there are many things you can do within the program to help students improve their math skills.

- **Teach math in the context of your occupational area.**

Present basic, fundamental components of math. Most important, present math in a practical, **job related context**, and math will seem less difficult, less threatening, and more worthwhile to your students. Students interested in finding a job immediately after completing their program will be motivated to learn the math they will need. If you address each math skill in terms of its practical use on the job, your students should come to realize how important math skills really are.

- **Review an assessment of your students' present levels of skill in math.**

Having identified the math skills needed in your occupational area, find out your students' abilities by giving them on-the-job math problems to solve; e.g., increasing or decreasing formulas or recipes; calculating the amount of metal needed for making a tool bo...

TECHNIQUES TO IMPROVE MATH SKILLS

- Create a very positive classroom atmosphere.
- Use individual or small-group instruction.
- Have students demonstrate on the overhead or chalkboard how they work problems so that you can pinpoint difficulties.
- Use visual and **tactile** means to reinforce math concepts; e.g., divide a piece of wire into 6 equal pieces.
- Make a visual ruler, e.g., a 12" dowel cut into 1" pieces. Have students measure by adding or subtracting the pieces.
- Relate math skills to students' hobbies, interests, or sports; e.g., 50 yards could be referred to as "half the length of a football field"
- Avoid paper-pencil math tests at first.
- Keep math tests short and informal.
- Review test results with **each** student
- Allow students to keep the best test grade or to discard the lowest.
- Invite a former graduate of your program to demonstrate how he/she uses **math on the job** everyday.
- Explain why each math skill is needed for the job.
- Use only the math vocabulary your students really need to know. Your students may not need the terms multiplicand, dividend, etc.
- Utilize math games that build speed and accuracy; e.g., roll dice three times and add results in 60 seconds.
- Provide calculators. Their use can enhance their learning of basic math facts.
- Encourage students to take responsibility for improving their own math ability.

BASIC SCIENCE SKILLS IN VOCATIONAL PROGRAMS

Learning science is a continual process. As students progress through school, each area of science has its own vocabulary, its distinctive requirements for comprehension, and its unique materials.

Some students may not have mastered enough science skills to enable them to utilize specialized materials and vocabulary words in vocational programs. Vocational students should be encouraged to take secondary advanced science subjects in their home schools. However, vocational teachers must also assume the responsibility for teaching the scientific vocabulary, materials, and processes within their occupational programs.

Just about every occupational area requires science skills. In electronics, there are schematic drawings to be read. In auto mechanics, there are manufacturers' specification sheets that students must follow. In computer programming, there is a whole new language to be learned.

Students must be able to locate information in reference manuals, and they must be able to follow step-by-step procedural directions. Remember, science is more effectively taught and learned within the context in which it may be directly applied (vocational education)!

Science is translating complex processes into simple step-by-step tasks. There are a number of abilities involved in understanding scientific processes. Help your students to acquire the following abilities.

- **Ability to perceive relationships.** Teach your students to distinguish between cause and effect, general and specific, whole and part, smaller and larger. In many occupational areas, it is particularly important to understand time and sequence (e.g., what must happen first, second, and third in a critical health-care procedure).

- **Ability to follow directions.** Teach your students to read a series of instructions and then take a course of action. Sometimes the directions are complex, and most times there is little room for error. Therefore, words must not be misunderstood, and word parts cannot be overlooked. Show students how to define scientific words through the use of common "key word parts" (e.g., "chrom" always refers to color and "hydro" to water).

- **Ability to take inferences and draw conclusions.** Teach your students to go beyond the facts presented in the reading and to try to anticipate the results or effects that might follow. It is a simple matter, for example, for a retailing student to read that the price of copper has gone up dramatically. It is much more difficult for the student to determine what that means in terms of the sale of electrical appliances or the design of plumbing supplies.

- **Ability to understand graphic symbols.** Teach your students to interpret the printed symbols. In addition, they must be able to understand the meaning of lines, numerals, and drawings on a chart or diagram. Vocational-technical subjects include many symbols that students must understand in order to complete a task.

- **Ability to react to sense images (sight, sound, taste, touch, and smell) suggested by words.** Teach your students to utilize all senses while learning. While reading a description of a plant, for example, a horticulture student should be able to form a mental picture of the healthy plant, the color and the smell of its blossoms, the texture of its leaves, and the taste of its fruit.

BASIC COMMUNICATION SKILLS IN VOCATIONAL PROGRAMS

Your primary role as a vocational teacher is to provide your students with the occupational competencies they need to succeed in the workplace. However, many graduates fail to obtain or keep a job. Studies indicate that many of our vocational students will fail because they lack the basic communication skills they need to talk with their supervisors, co-workers, and customers in person or by phone. Students may fail to communicate effectively either because they don't know what to say in a given work situation or because they say the wrong things!

Through your daily instructional activities, you can do a great deal to help students learn to communicate orally in the kinds of situations they will encounter on the job. There are three parts of effective oral communication: speaking, listening, and nonverbal behavior. A student needs to be a good speaker and a good listener and to use appropriate nonverbal behavior.

- **Speaking** - To fulfill job obligations, a student's speech must be correct, concise, and organized, and must express a complete thought and be appropriate for the intended audience.

- **Listening** - To be an active listener, a student must pay careful attention to the speaker, respond to the speaker by asking questions for clarification, maintain eye contact, and be open-minded.

- **Non verbal behavior** - To create a positive impression on listeners, a student must appear attentive, enthusiastic, interested, self-confident, sincere, and courteous.

You can help students develop basic communication skills by teaching them the kinds of responses they will need for specific situations on the job. Be knowledgeable about the types of situations in which your students will need to express themselves and the responses that are most appropriate.

TECHNIQUES TO IMPROVE BASIC COMMUNICATION SKILLS

- Create a supportive classroom atmosphere where students feel accepted and free to express themselves.
- Correct the behavior rather than criticize the student.
- Be a role **model** by using complete sentences and correct grammar.
- Maintain eye contact with the listener.
- Avoid distracting mannerisms; e.g., jingling coins in pocket, cracking knuckles.
- Use body language to convey a sympathetic and receptive attitude toward the speaker.
- Involve shy or withdrawn students in class or lab activities by pairing these students into work groups with other students.
- Patiently correct slang and/or "filler" language ("like. . .you know").
- Provide opportunities for students to practice and improve their communication skills; e.g., role playing, videotaped or audiotaped practice.
- Allow students to observe specific, appropriate communications skills by using films or audio tapes, or by inviting guest speakers to class.
- Have a question-and-answer period following a speaker's presentation that gives students one more opportunity to practice their own communication skills.
- Allow the students use of the telephone to invite speakers, order supplies, etc., for your program.
- Provide scripts (either written or audio tape) of negative examples of oral communications between customers and employees and have the students make a corrected script.
- Allow your students to provide most of the **public relations** for your program by letting them make a slide/tape presentation; write a descriptive brochure; or conduct an open house.

ADDITIONAL RESOURCES

1. "Basics: Bridging Vocational and Academic Skills." The National Center for Research In Vocational Education Ohio State University
   1960 Kenny Road
   Columbus, Ohio 43210-1090

2. "Basic View Exploration Handbook."
   University of Missouri
   10 Industrial Education Building
   Columbus, Missouri 65211

3. Category M Series: "Assisting Students in Improving Their Basic Skills". The National Center for Research in Vocational Education, Professional Teacher Education Module Series, 1985.
   The American Association for Vocational Instructional Materials
   120 Driftmier Engineering Court
   The University of Georgia
   Athens, Georgia 30602

4. "Vocational Related Math".
   University of Missouri
   10 Industrial Education Building
   Columbus, Missouri 65211

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