UNIT 2

Construction, Health and Safety

by Anne Meisenzahl and David Greene
Edited by Keisha Edwards
UNIT 2

Construction
Health and Safety

by Anne Meisenzahl and David Greene
Edited by Keisha Edwards

Published by YouthBuild USA with funding from the Charles Stewart Mott Foundation © 2001
Acknowledgements

Working Hands, Working Minds is a work in progress. The authors have experimented over the years with a variety of strategies for bringing education, community building, and societal issues into an occupational framework. We are eager to work with other teachers and learn from them as they experiment with new ways to engage, involve, and challenge young people who are working to create a better future for themselves and others. This curriculum is based upon our belief that meaningful learning is contextual, intuitive, and connected to community issues.

This curriculum began with YouthBuild teachers. All three authors are now working, or have worked in the past, in a local YouthBuild program. We received tremendous support from many people in many youth-serving organizations, and we received very helpful and specific feedback all along the way. At Banana Kelly Community Improvement Association, we received many helpful suggestions from Getz Obstfeld, Matthew Horwitz, Phil Mass, Michael Murray, and Andy Padian. At Youth Action Program and Homes, Sonia Bu, Dorothy Stoneman, Richard Green, Sam White, and Shakor Aljuwani were very encouraging. At the Young Adult Learning Academy, Peter Kleinbard gave us support, feedback, and access to resources.

In the early stages of the curriculum outline, we received planning guidance from Gary Huntington, Home Builders Institute; Sue Trainer, Mark Russo, Cornell Cooperative Extension; Libby Palmer, Girls’ Club; Tom Sahagian, Bob Ziske, Alan Gloveski, Ben Wishnoff, Housing, Preservation and Development; Mario Salvadori, City College Center for the Built Environment; Adina Higgs, Lower East Side Catholic Area Council; Julius Stone, Ed Hauser, NYC Board of Education; Jerry Cofta, Theater for the Forgotten; Habitat for Humanity, New York City; Denver Alternative School; Architects, Designers, and Planners for Social Responsibility; Mosaic Program; Pat Campbell; Michael Epstein; Judy Hoffman, Loa Scheider, Non-traditional Careers for Women; Sandy Weinbaum, Academy for Educational Development; Terri Meade, Frank Wirmusky, Young Adult Learning Academy; David Calvert, Richard Green, Youth Action Program and Homes; Curdina Hill, Dorothy Stoneman, Nelson Merced, YouthBuild USA; John Garvey, John Mogoleskieu, City University of New York; Dianne Kangisser, Robert Bowne Foundation; Linda Gillies, Vincent Astor Foundation; Gilda Wray, Charles Hayden Foundation.

We greatly appreciate the invaluable advice and suggestions for design and content received from David Rosen, Jerry Kolker, Phyllis Mitchell, Lea Campolo, David Lopes, Stephanie Berry, Roger Peace, Mike Sack, Kathleen Clarke-Glover, Beverly West, Matthew Horwitz, Josh Greene, and Janet Greene.
A number of YouthBuild programs gave us the opportunity to observe, raise questions, get feedback, and collect specific suggestions: Youth At Work (Lower East Side Catholic Area Council), YouthBuild Boston, YouthBuild San Francisco, YouthBuild Saint Louis, YouthBuild Gadsden, YouthBuild Gary, YouthBuild Philadelphia, YouthBuild Tallahassee, YouthBuild Pittsburgh, Atlantic City YouthBuild, Center for Alternative Sentencing and Employment Services (CASES), Mosaic, YouthBuild Indianapolis, YouthBuild Milwaukee, and YouthBuild Cleveland.

Of the many YouthBuild teachers and students who have shared ideas and content for lessons, we particularly want to thank Derle Wade, Columbia Heights YouthBuild; Ed DeGraffenreid, YouthBuild Oklahoma City; Carol Lacata and students of Mon YouthBuild; Denise Stafford and students of ARCH Training Center; Rosie Hartzler, Matt Sten, and Kirk Garrison, Portland YouthBuilders; Denise Bequette, Service Learning Center of Rochester; Bob Elser, YouthBuild Philadelphia; Terry Moran and Steve Ingalls, YouthBuild New Bedford.

We offer our apologies to any people who contributed to this effort and who are not named here; we know you are out there and we appreciate you. Whenever possible, we have credited the photographers whose work appears throughout Working Hands, Working Minds; we wish to thank any whose names may have been omitted.

The writing and research for the initial draft of Working Hands, Working Minds was made possible through generous grants from the Robert Bowne Foundation, the Vincent Astor Foundation, the Charles Hayden Foundation, and YouthBuild USA.

Thanks to a grant from the Charles Stewart Mott Foundation, YouthBuild USA and the Northwest Regional Educational Laboratory (NWREL) produced this 2001 version of Working Hands, Working Minds. We especially thank Chris Sturgis, Program Officer at The Charles Stewart Mott Foundation.

This version could not have become a reality without the heartfelt commitment of the following YouthBuild USA and NWREL staff: Linda Hummer, Judy Blankenship, Rosie Hunter, Rich Melo, Emily Hartman, Andrea Baker, Michelle Sugahiro, Eve McDermott, Tim Cross, Holladay Weiss, Jill Bottomley, Maya Escobar and Janet Peirce.

The leadership of Monte Perez, Education Director at YouthBuild USA, guided us in every step along the way; his vision and encouragement helped us all.

Finally, we want to give a special appreciation to the hundreds of young people we worked with over the years. They gave us guidance, made us laugh, and challenged our assumptions. Their contributions are immeasurable.

Anne Meisenzahl, David Greene, and Keisha Edwards
Special Thanks

YouthBuild USA is proud to present this fine curriculum for use by YouthBuild programs. Anne Meisenzahl and David Greene, the primary authors of this curriculum, deserve enormous respect and gratitude for their creative and persistent work. They were both teachers in the first two YouthBuild programs in New York City during the mid-1980s. Anne taught at Banana Kelly Community Improvement Association in the South Bronx, and David Green taught at Youth Action Program in East Harlem. As teachers they discovered there was no appropriate vocational education curriculum in existence and they embarked on what turned out to be a 16-year trek to produce something truly useful for future YouthBuild teachers. Their incredible determination to find the time, the funds, and the expert consultation to give this gift to their fellow teachers, and to their students, is the highest form of dedication to a vision and to service. We thank them.

Dorothy Stoneman
President, YouthBuild USA
# Table of Contents

**Guide for Facilitators**

A. What is YouthBuild and Who Participates? ............................................. 5  
C. *Working Hands, Working Minds*: Blueprint for Success ......................... 8  
D. *Working Hands, Working Minds*: The Foundation ................................. 15  
E. Making the Curriculum Work for Your Program .................................... 17  
F. Tips for Instructors ................................................................................. 23  

Overview of Construction Health and Safety ............................................ 28  
Lesson 1 — Staying Safe: Attitudes and Behavior ..................................... 32  
Lesson 2 — Mind and Body in the Workplace ......................................... 40  
Lesson 3 — Safety Rules ........................................................................... 50  
Lesson 4 — Reading Warning Signs ......................................................... 60  
Lesson 5 — Personal Safety Gear ............................................................... 66  
Lesson 6 — Using Power Tools Safely ......................................................... 76  
Lesson 7 — Safety Precautions: Protecting Your Back ............................... 84  
Lesson 8 — The Construction Site: Safety in Action ................................. 94  
Lesson 9 — Dealing With Emergencies ...................................................... 104  
Lesson 10 — Communication for Safety .................................................... 114  
Lesson 11 — Violence and Sexual Harassment in the Workplace ............ 122  
Lesson 12 — Health and Safety Organizations ........................................... 134  
Lesson 13 — Workplace Safety Assessment ............................................... 144  
Tools and Resources .................................................................................. 155  
Supplemental Materials ............................................................................ 157
Guide for Facilitators

What is YouthBuild and Who Participates?

YouthBuild is a highly successful and well-respected program for out-of-school young adults that places equal emphasis on community development, job training, career development, and education. The program is nationally recognized for its ability to enable young adults to create success for themselves while making a significant contribution to society. As of June 2000, there are approximately 145 YouthBuild programs operating in 43 states.

Started in 1978 as the Youth Action Program with support from the U.S. Department of Housing and Urban Development (HUD), YouthBuild provides young adults an immediately productive role in their community. As they engage in the development and renovation of low-income housing, they contribute to their communities, they learn about the responsibilities of work, they learn academic skills required for a high school diploma or a GED, they acquire job skills in the construction trades, and they learn skills of leadership and social action.

Is YouthBuild an alternative school? A charter school? An employability program for out-of-school youth? A social movement? A chance for “at-risk” young adults to learn the skills required for success? A state-of-the-art example of contextual learning? The essence of school-to-work? It’s all of the above, and more — everyone who has experienced YouthBuild will add to the above description. Every YouthBuild program creates its own flavor and personality. With support and technical assistance from the national YouthBuild USA staff, young adults across the country are using the construction of low-income housing as the context through which they learn the skills to be productive, independent, contributing, and satisfied members of their communities.

The HUD legislation defines YouthBuild students as follows:

- Participants must be between 16 and 24 years old.
- At least 75 percent must have dropped out of high school.
- At least 75 percent must be low income or from a low-income family.
- One hundred percent (100 percent) must have “educational needs.”
The Working Hands, Working Minds Curriculum: What It Is and Isn’t

Working Hands, Working Minds is an integrated construction curriculum. It was designed for academic instructors and construction trainers to use collaboratively.

In all YouthBuild programs, learning is an active process that involves interpreting new information, connecting it in some way to one’s prior knowledge, and applying it appropriately. Traditional instruction focuses on discrete skills and isolated facts; it makes minimal connection to anything beyond the classroom or text. It does not advance authentic learning. Integrated and interdisciplinary curriculum, on the other hand, reflects real learning in the real world.

The YouthBuild Integrated Construction Curriculum, Working Hands, Working Minds, motivates students by engaging them in real-world problems and projects. Using the teacher as their guide, students investigate authentic community problems. They decide how they are going to proceed and what strategies to use. They develop the skills they need to take responsibility for their own learning. Students also share their individual talents and expertise as they work on projects as collaborative team members. They learn by talking over ideas with others, explaining their answers, and listening to other viewpoints.

In Working Hands, Working Minds, students explore topics and themes that are relevant and rich in possibilities. They are involved in activities that are practical and have clear value in a particular field. Instead of students showing what they know by taking a test that targets their weaknesses, they demonstrate their understanding in the context of meaningful activities that support their strengths and abilities.

Working Hands, Working Minds consists of the following five units:
1. Health and Safety
2. Housing and Community
3. Construction-Related Math and Measurement
4. Tools, Trades, and Technology in Construction
5. Teamwork and Leadership in Construction

It would be reasonable to ask why these five units were chosen to be the first phase of Working Hands, Working Minds. In many training programs, the two components — academics and construction — are separate and distinct from one another. Working Hands, Working Minds closes that gap. This curriculum is designed to help YouthBuild instructors and trainers integrate academics, construction, and leadership development. It fosters reading, writing, and mathematics learning through the context of construction; skill training is directly linked to community responsibility and social analysis.
Each of the five units is an introduction, and only an introduction, to the topic. Each unit presents what we believe to be the essential ingredients of the topics, those ingredients that are essential to a YouthBuild student’s learning. In the future, we plan to produce an intermediate and an advanced version of every one of these units for those young adults who have an extended YouthBuild experience, at this time, however, it is important for the users of the curriculum to realize that these lessons represent a critical foundation and, we hope, a springboard for other related learning experiences.

We encourage program staff to use the curriculum as a recipe. Although Working Hands, Working Minds was developed by many people, it does not represent rigid operating instructions. Usually the first time you cook a recipe, you follow the directions. But the next time you cook the recipe, you might add one thing and take out another. Just as a good recipe is a guide for you to create the dish you want to serve your diners, this is a flexible curriculum with many opportunities to give it your own flavor and personality.

It is critical to remember that learning happens everywhere at YouthBuild — at the construction sites in the community, in the academic and vocational classrooms, during community meetings, and while doing community service. All of YouthBuild is education. Therefore, this curriculum is a vehicle for program staff to integrate what they teach, why they teach it, and how they teach it.

These five units of Working Hands, Working Minds do not teach the technical vocational skills of the construction trades, such as framing, masonry, finish carpentry, plumbing, etc. Rather, these units teach a set of transferable skills that are critical for and applicable in any of the construction trades. In fact, many of the skills taught in these units, such as teamwork, basic writing and communication, critical thinking, and problem solving, are transferable to careers in nearly any occupational area.
Working Hands, Working Minds: Blueprint for Success

Working Hands, Working Minds is a curriculum that reflects current research and practice related to contextual teaching and learning. What is contextual learning? In a contextual learning environment, textbooks, lectures, and traditional tests are no longer the primary teaching tools. Rather, they are supplemental to a learning process in which students apply and experience what is being taught by addressing real problems and needs associated with their roles and responsibilities as family members, citizens, students, and workers. In a YouthBuild program, students are at the center of their learning, and construction of low-income housing is the context.

According to current research there are six key elements of contextual learning (Owens, Tom; Dunham, Dan and Wang, Changhua, “Toward a Theory of Contextual Teaching and Learning,” Washington State Preservice Teacher Education Consortium for Contextual Teaching and Learning, 1999):

1. Meaningful learning
2. Application of knowledge
3. Higher order thinking
4. Standards-based
5. Cultures-focused
6. Authentic assessment

Related to those elements of contextual learning, the Working Hands, Working Minds blueprint has been drawn to:

• Engage youth in real conversation about issues relevant to their lives.
• Help youth articulate their dreams, goals, experiences, skills, and talents.
• Encourage youth to plan and participate in change in their own lives and their communities.
• Challenge youth to step out of their comfort zone and put themselves in the driver’s seat of their own learning.
• Push youth to think critically about program standards and employability standards as they assess their own strengths and weaknesses.
• Engage youth in hands-on activities with a meaningful balance of theory and practice in a safe environment.
• Engage youth in meaningful reflection about each lesson, thus teaching that reflection is a valuable process in our lives.

1 Reprinted with permission from the Northwest Regional Educational Laboratory.
• Instruct youth in the development of portfolios so they can document and articulate their knowledge and skills.
• Help youth make connections between the classroom, the worksite, and life beyond YouthBuild.
• Immerse youth in culturally relevant perspectives.

Just as the occupants of a building do not need to think about the architectural blueprints every day, YouthBuild staff do not need to recite these principles of contextual learning; however, in a program that operates without them, learning will not be meaningful.

Described below are some examples of how these principles play out in Working Hands, Working Minds.

Teaching from Real Life Experiences

Skills introduced in Working Hands, Working Minds are taught in the context of low-income housing construction. The skills are introduced in reference to real community and social problems that need to be solved, in conjunction with real tasks that need to be accomplished. For example, when students build a porch on a low-income apartment unit, the curriculum addresses the reading, writing, and math skills needed to accomplish that task. In a lesson that teaches about first aid and how to respond to emergencies, related reading, writing, and communication skills are emphasized. Specific academic skills are identified in the GED description later in this section.

As young people work in and contribute to their communities, they assume ownership and they invest into the community. Their work is real, their work is urgent, and their work is valued. It is through these real life experiences that YouthBuild young adults flourish and create their own success.

Fostering Teamwork

Teamwork skills are among the most critical for success in any job in any career; construction sites are a perfect context for teaching these skills. Teamwork and cooperation are embedded throughout the curriculum. Students working together in teams learn a fundamental lesson: we are stronger when we help each other and share our skills than if we ignore or compete against one another. As students learn group skills necessary for work, their communication skills are enhanced and they develop confidence in solving problems. They learn to trust each other and respect differences. They participate actively and learn to work both cooperatively and independently.
In this curriculum, many activities involve the use of small groups and teamwork. The following questions should be taken into consideration regarding the use of small groups:

- What are the reading and verbal abilities of students in the groups?
- How are students’ maturity levels similar and/or different regarding teamwork skills? How will you structure the activities to increase the skill levels of all the students?
- Will anyone feel left out or left behind? How will students be able to assist one another?
- How many students are in the class and how will small groups be structured?
- What are the group management issues?
- What skills do the instructors have?
- Will staff training be available, if needed?

**Encouraging Problem Solving and Critical Thinking**

Problem posing and problem solving are key components of *Working Hands, Working Minds*. All lessons incorporate opportunities for generating questions, solving problems, and reflecting on the process. Students are given opportunities to use their own experiences as a source of information on how to complete tasks and reach goals. The lessons in the curriculum are designed to facilitate critical analysis and reflection by creating opportunities for students to act on and experiment with the problems and solutions they have posed. The curriculum makes explicit the connection between these problems, community development, and the literacy skills needed to support reflection and action.

**Developing Skills of Social Analysis**

In *Working Hands, Working Minds*, the social realities of housing, community, and urban development are addressed through the construction and renovation of low-income housing. Students have opportunities to research and appraise related social issues and to develop strategies for creating change. By participating in the process of renovating buildings or constructing new homes, students are making important social contributions. In this curriculum, through research, reading, writing, and math activities, students become more conscious of their socially useful role.
The Importance of the General Equivalency Diploma (GED)

Obtaining either a high school diploma or a General Equivalency Diploma (GED) is an important goal for YouthBuild students. The GED examination certifies that a learner performs academically at a level that is equivalent to a high school education.

Although for many years the GED has been nationally recognized as an equivalent to the high school diploma, some people believe it does not represent equal rigor and preparation for postsecondary courses. Most of the studies comparing the outcomes of GED and high school graduates indicate that, although getting a GED does not offer the same set of comprehensive experiences that a high school education/ diploma would provide, it does allow individuals to enter the job market and postsecondary education at similar rates. In other words, the GED definitely provides an avenue for young people to pursue job opportunities and postsecondary education.

YouthBuild students who are close to graduating from high school and lack only a few high school credits are encouraged to obtain their diploma either through partnership with the local school system or through the YouthBuild program itself. However, for many YouthBuild students, the GED provides the most efficient and reasonable pathway to high school competition. The GED is recognized by employers and postsecondary institutions as proof that the individual has achieved a level of competency that will benefit them on the job and in future educational endeavors.

The major academic and GED skills emphasized in the first five units of Working Hands, Working Minds include:

**Reading and Writing**
- Recognize and infer cause and effect
- Predict outcomes
- Apply information to new situations
- Recognize, recall, summarize, and express main ideas
- Recall detail
- Recognize sequence
- Organize ideas
- Write an essay
- Use the library, encyclopedia, table of contents, and index of a book
- Read and write poetry

**Math**
- Define standard units of measurement
- Convert length and time measurements
• Solve measurement problems
• Add, subtract, multiply, and divide numbers using inches, feet, and yards
• Use fractions and percentages to solve problems
• Use standard measurement tools, such as ruler, tape measure or yardstick
• Estimate and draft a budget
• Solve area problems using square foot and perimeter
• Explore angles and triangles as used in construction

The New GED Test to be used in 2002, will provide students with calculators during part of the Math Section of the Test. Students will be expected to be able to use these calculators effectively to answer questions. We recommend that staff access training and learning materials to facilitate the development of this new skill requirement for the General Equivalency Diploma.

These skills are interspersed throughout many of the lessons in all of the units. Students have multiple opportunities to practice using the skills both in the classroom and on the construction sites. As the students learn these skills in the context of doing construction, they understand that the skills are transferable to many other areas of their lives.

**Employability and Career Development**

YouthBuild helps young adults acquire the skills required to succeed in any job, in any industry, in any community. In 1991 the U.S. Department of Labor’s Secretary’s Commission on Achieving Necessary Skills (SCANS) gathered information from business owners, public employees, union officials, and workers in all types of jobs from entry level to top management. The conclusions were unanimous:

“New workers must be creative and responsible problem solvers and have the skills and attitudes on which employers can build. Traditional jobs are changing and new jobs are created every day. High paying but unskilled jobs are disappearing. Employers and employees share the belief that all workplaces must ‘work smarter.’”

(From *What Work Requires of Schools*, A SCANS Report for AMERICA 2000, 1991)

Most youth employment programs, as well as nearly every state education agency, have adopted the SCANS competencies as those skills that all people need to become productive, independent, contributing, and satisfied members of society. *Working Hands, Working Minds* consciously and directly addresses the following SCANS competencies and foundation skills:
• **Identify, organize, plan, and allocate resources:** time, money, material and facilities, and human resources

• **Work with others:** teamwork, teach others, serve clients and customers, leadership, and work with diversity

• **Acquire and use information:** find and assess information, organize and communicate information, and use computers to process information

• **Understand complex inter-relationships:** understand, improve and design systems, correct performance

• **Work with a variety of technologies:** apply technology to a task, maintain and troubleshoot equipment

• **Basic skills:** reading, writing, math, listening, speaking

• **Thinking skills:** creative thinking, decision making, problem solving, knowing how to learn, reasoning

• **Personal qualities:** responsibility, self-esteem, sociability, self-management, integrity/honesty

As YouthBuild students successfully complete the *Working Hands, Working Minds* lessons, they demonstrate increasingly high levels of achievement of the SCANS competencies that are critical to construction or any other industry they may choose to pursue. Through the learning activities and portfolio entries, YouthBuild students have many opportunities to document their skills for use on a resume, letter of application, or job interview.

In order to help students prepare for the realities of the world of work, many lessons involve visiting local workplaces, gathering information about career opportunities, and interviewing workers. Not only do these activities acquaint students with the literacy skills needed to do particular jobs, but they also learn about the physical environment, teamwork, and communication skills required by different jobs.

*Working Hands, Working Minds* is about career exploration. By researching the types of jobs available in the construction trades, students gain a broader understanding of the options available to them, and develop a realistic sense of what skills and training they will need for jobs that interest them.

**Assessment**

YouthBuild thrives in the new era of educational assessment. The traditional paper-and-pencil testing mode of assessment is losing prominence. A few notes about the “old methods” will add to our understanding of the new. It used to be that achievement tests were used to sort and separate learners into those who went on to college and those who didn’t. Traditionally, teachers taught and students were tested to determine if they learned what they were
supposed to; this created a wall between teachers and students. The ’70s brought statewide testing, the ’80s and ’90s brought national standards and centralized assessments.

The more realistic theory of assessment is that testing alone is insufficient. Assessment must be used to inform the instructional process and the learning process, and the teacher and the student should use assessment information equally. Here are a few assumptions about authentic assessment:

• Meaningful learning and meaningful assessment go hand-in-hand; one won’t happen without the other.
• Good assessment comes from a clear vision of expected outcomes; the standards and criteria for excellence are clear and understood by both the learner and the instructor.
• Good assessment actively involves the learner; there is a conscious emphasis on reflection and ownership of learning.
• Assessment has many purposes, strategies, and products; it is multidimensional, much more than a test-at-the-end strategy.
• Assessment should not be a time-eater; it should save time. It should make the job of teaching easier and more effective.
• There is ongoing positive interaction between all learners, including the instructor.

The assessment process in Working Hands, Working Minds is as authentic as possible. It is based on the “use it or lose it” theory of knowledge. Every lesson in all five units ends with Creative Extensions and Project-Based Learning Activities so that students can demonstrate their understanding of what they have learned. Both of these components of the lessons are structured opportunities for students to apply what they have learned. Embedded in the lessons are numerous opportunities for both individual and group reflection.

The final lesson in each unit is a formal assessment of learning that measures young peoples’ ability to apply and personalize the information they have acquired. Assessment activities in each unit might include writing a response to a question such as, “How have your attitudes, beliefs, and ideas changed as a result of this unit?” Or students might complete a safety self-assessment and compare it to one completed by their construction trainer.

Throughout each unit, students collect work products/samples to put in a portfolio. As the culmination of the student’s work in the unit, the portfolio serves the following purposes:

• It is a student-centered assessment tool. Students make judgments about the quality of their work and learning and what needs to be improved.
It enables teachers to review collected work and make judgments about students’ growth over time.

It has the potential to boost students’ self-confidence about their skills because it offers a concrete illustration of these skills.

It is a potential tool to help students “show what they know” to a prospective employer, internship host, or educational institution.

Although different YouthBuild programs make different uses of portfolios, in its simplest form a portfolio serves as an assessment tool for instructors, a self-assessment tool for students, and the raw material to use for a career presentation portfolio.

**Working Hands, Working Minds: The Foundation**

First, a note about learning readiness. Learning readiness is defined as the ability of a learner to engage in the instructional program with effective learning and study skill habits. YouthBuild students must be able to take notes, do homework, take examinations, read and digest material, write effective prose, problem solve, and think critically — all habits that are conducive to life-long learning. In addition, YouthBuild students need to learn how to ask questions, think about their learning, and assess how they are doing with the material that is presented to them. Study groups are often used to support effective learning and study habits.

*Working Hands, Working Minds* was conceived as a way to introduce individuals to the world of construction and its relationships to academic achievement, e.g., reading, writing, and mathematics. It provides classroom teachers, counselors, and construction managers with a set of lessons to integrate academics with construction skills. Because *Working Hands, Working Minds* requires YouthBuild students to learn and practice effective study skills, learning readiness is an important consideration when delivering the curriculum.

Learning readiness is a key to successfully completing the GED program, learning construction skills, and being prepared to enter the job market or post secondary education. *Working Hands, Working Minds* was designed to take this into consideration in both content and process.

*Working Hands, Working Minds* was designed to be easy to use, easy to adapt, and easy to integrate with other program curricula. Therefore, each unit has a similar format and each lesson has the same design. Described below is the structure of the units and the lessons in each unit.
Each unit has an overview, which includes:

- A brief summary of each lesson.
- A competency checklist that outlines the skills (both academic and construction) students should be able to perform upon successful completion of the lessons in the unit.
- A portfolio assessment checklist that outlines the materials students could include in their portfolios.

Each lesson in each unit uses the following format:

- **Aim:** The purpose of the lesson and what students will do/learn.
- **Key Terms and Concepts:** A list of vocabulary words that can be introduced in relation to specific lessons.
- **Time:** Approximately how long the lesson should take.
- **Things to Consider:** What an instructor might need to do or think about before starting to teach the lesson, such as how to present a sensitive topic, finding a guest speaker, arranging for access to computers for Internet research, or preparing for career interviews.
- **Materials, Tools and Resources:** A list of all the handouts and any materials that are needed to teach the lesson, such as flipchart paper, student journals, or newspapers.
- **Steps for Activities:** A lightly scripted step-by-step guide for the instructor.
- **Wrap-Up:** Reflection on the lesson, thinking about how to apply what was learned both to the YouthBuild program and to one’s personal life.
- **Creative Extensions:** Suggestions about ways to adapt certain activities in the lesson; ideas for embellishing the lesson; simple applications or ways to practice what was learned in the classroom.
- **Project-Based Learning Activities:** Ideas for extending the lesson with a group or individual project that requires students to take leadership to plan, carry out their activities, and reflect on what they did and learned. Projects should all have a community component in which students connect with other people or organizations; some have career connections. These activities are ideas for program staff to start from, not fully scripted guides for each project idea.
- **Handouts:** All handouts required to complete the lesson are at the end of the lesson; others are in the supplemental Tools and Resources section at the end of the unit.

Following the lessons in each unit are two final sections:

- **Tools and Resources** section lists print, Internet, and video resources that might be helpful for enrichment activities or for the facilitator.
• **Supplemental Handouts** suggest optional activities, creative extensions, and project-based learning activities.

  “We do vocational education on the site two mornings a week. We are in a room in a garage that is set up like a classroom. It has a desk, tables and a blackboard…I also teach vocational education in the classroom two sessions a week. We have a good blackboard, textbooks, and a VCR. We combine reading and writing, vocabulary development, demonstration, and hands-on practice…I’m also planning to deal with the history of construction careers, barriers to employment for women, real estate, financing and community development, because these topics make construction come alive, students can see the relevance of it.”

  **Rebecca Etchison, YouthBuild Dayton**

**Making the Curriculum Work for Your Program**

*Working Hands, Working Minds* is appropriate for any program that strives to teach construction skills in the context of community development and social action.

The curriculum is applicable to any performance-based and competency-based education programs. It can be integrated into programs that use Individual Education Plans (IEPs) or Academic Development Plans (ADPs) in which students have individual plans geared to their particular learning needs. It can be used in conjunction with other curricula; it can supplement high school equivalency (GED) or high school diploma curricula. Programs can adapt the curriculum to meet their needs by selecting lessons relevant to their program’s competencies.

*Working Hands, Working Minds* is designed to be used by a team of staff (teachers, counselors, construction managers, and other instructional staff) working together to coordinate the learning process. Programs should make their own decisions about which lessons will be taught, who will teach which lessons of each unit, and which lessons will be taught as a team. Instructors should meet regularly to plan and debrief.

Groups might consider the following questions as they plan the use of the curriculum:

• Where will instruction take place?
• Who will teach which lessons?
• How will the program maximize the integration of worksite and classroom instruction?
• When will instructional staff meet to plan, coordinate instruction, and debrief?
• How much of the time will be spent team-teaching and how much will be separate?

Depending on the staffing structure and the skills and background of the staff, programs can use *Working Hands, Working Minds* in numerous ways, ranging from a traditional approach (in which components remain distinct) to a fully integrated approach. Three of these approaches are described below.

1. **Separate but Equal Approach**

In this traditional model, academic teachers, worksite instructors, and vocational instructors work and teach separately, but reinforce each other’s separate domains and support each other’s work. Instructors and teachers choose separate lessons from the curriculum to teach in their distinct components, but do not actually teach together. Because of the shared theme of the lessons, students may, on their own, make the intellectual connection between them, but the connection is not overtly emphasized by the instructors.

2. **Content Exchange Approach**

In this approach, academic teachers and vocational instructors meet initially to discuss how to divide the lessons and when lessons might best be taught in order to support each other’s content area. They meet regularly to discuss how the curriculum can be expanded to demonstrate the interrelatedness of the content. For example, when students learn vocabulary, they use words related to construction; after learning how to frame a wall on the construction site, students might describe the process in a writing exercise in the classroom.

Vocational instructors might recommend creative extensions or project-based learning activities to be coordinated by the teacher; academic teachers might suggest materials and methods for teaching measurement skills on the worksite.

3. **Team Teaching Approach**

When “teaming,” worksite instructors, academic teachers, and vocational instructors work together to choose lessons, develop additional instructional materials, present material, and assess student progress. In this highly cooperative approach, instructors demonstrate to students the way in which their respective fields are related. The academic teacher might go to the worksite to teach the math skills needed to measure the perimeter of a lot to determine board feet of fencing needed, or to teach the reading skills needed to understand the directions for operating a power tool. Likewise, worksite and vocational instructors might go into the classroom to teach proper names and operating instructions of tools to be used on the construction site. Academic and vocational teachers decide which lessons can be taught together and with which activities they can assist each other.
On a frequent basis, all of the instructional partners meet to assess the collaboration process and to discuss continuous improvement of the process.

**Using the Key Terms and Concepts**

At the beginning of each lesson you will find a list of vocabulary words from the lesson that may require clarification and dialogue. Listed here are a few ideas for teaching the key words and concepts.

- **Before each lesson, write the words on the board and ask students what they think the words mean.** Have a short group discussion to come to consensus on definition; if consensus is not reached, wait until the term or concept appears in the lesson and then revisit the discussion.

- **Before beginning the lesson, you could have students individually write down what they think the terms mean.** Then, at the end of the lesson, ask students to revisit their definitions and revise, as necessary. Give students a chance to compare their definitions and come to a common definition.

- **Students can compile glossaries of key terms** and continue to add words to it from each lesson. In addition to writing definitions, they could divide words into syllables to aid spelling, identify parts of speech, and use words in sentences.

- **Short quizzes** can be given at the end of a lesson so students can assess their own comprehension of the key terms and concepts.

- **A homework assignment** could be for students to teach one or more of the key terms or concepts to a family member or friend.

- **Using computers**, students can create YouthBuild dictionaries with definitions of the key terms and concepts.

The last lesson in each unit is a good time to briefly review the vocabulary from the unit and assess comprehension.

- **You could be traditional** and give a test.

- **You could be dramatic** and ask for a skit using some of the key terms.

- **You could be playful** and engage students in a charades or game activity.

- **You could be humorous** and let students draw cartoons with captions or write jokes using the vocabulary words.

**Creative Extensions**

Everyone teaches differently and all learners have their own unique interests and needs. We know that there is no “one right way” to teach, and the more teachers modify these lessons to make them their own, the more effective they will be. Therefore we have included two or three ideas for modifying or
enriching the lesson. These ideas are optional of course, and are meant to be short, creative, typically classroom-based extensions and modifications of the lesson. The overall purpose, however, is to offer students alternative strategies to learn and opportunities to apply what they learned in a wide variety of ways.

One simple example of a creative extension in the math unit is to have students write their own construction-related word problems using the skills they learned in the lesson. A more complex creative extension in the math unit has students explore how the architect Frank Lloyd Wright used angles and geometrical shapes to enhance the aesthetic beauty and functionality of his buildings. Many creative extensions are, in fact, applications of learning that can be used as an assessment of how well the students learned the subject matter.

While the overall purpose is application of knowledge gained, these creative extensions should also be motivating and personalized. For example, the one about Frank Lloyd Wright could be changed so that a student or group of students select their own architect to study. If you wanted to personalize or localize the project even further, you could focus on local architects.

The creative extensions are meant to be just that — creative activities that extend, embellish, or enrich the lesson.

Project-Based Learning

Every day more research appears on the rationale for, and the value of, project-based learning. It is a teaching and learning strategy that puts students “in the driver’s seat of their own learning.” YouthBuild is intrinsically conducive to project-based learning because of the very nature of the construction projects.

What is a project? Coupling the current research and practice on project-based learning with the YouthBuild philosophy, a good YouthBuild project is a cohesive set of learning activities with the following characteristics:

- A project is derived from an issue or idea that has authentic meaning for the student(s), the community, and the program.
- Rather than focusing on one subject area, projects are interdisciplinary and integrate a variety of content areas.
- A project takes more than a week to complete; it is a series of activities that hang together with a beginning, a middle, and an end.
- Students, teachers, and in many cases, community members, collaborate in the planning, execution, and assessment of the project.
- A project requires the use of both community and classroom resources.
- Projects require students to use critical thinking and problem-solving skills, and many of the GED skills and employability (SCANS) skills described earlier in this Guide for Facilitators.
Projects encourage teamwork and leadership as students take on different roles and assist each other in the learning process.

A project should ideally result in a product, presentation, portfolio, or demonstration of knowledge.

Project-based learning demands that both students and teachers assume new roles.

The teacher is the facilitator, not the leader.
The teacher learns along with the students rather than being an expert.
The teacher gives up some authority as the students demonstrate leadership.
The teacher is a coach, cheerleader, and a model.
The teacher must be patient, willing to let students make mistakes in a safe environment, and ready to support students through the bumps in the road.

One of the nicest pieces written recently on project-based learning is from a toolkit titled *Connected Learning Communities Toolkit for Reinventing High School* (Jobs for the Future) by Adria Steinberg of Jobs for the Future. Divided into six categories, the author identifies these criteria for designing projects:

**Authenticity**
- Project emanates from a problem or question that has meaning to the student.
- Problem or question is one that might actually be tackled by an adult at work or in the community.
- Students create or produce something that has personal and/or social value, beyond the school setting.

**Academic Rigor**
- Students acquire and apply knowledge central to one or more discipline or content area.
- Students use methods of inquiry central to one or more disciplines (e.g., to think like a scientist).
- Students develop higher-order thinking skills and habits of mind (e.g., searching for evidence, taking different perspectives).

**Applied Learning**
- Students solve a semi structured problem (e.g. designing a product, improving a system, or organizing an event) that is grounded in a context of life and work beyond the school walls.
- Students acquire and use competencies expected in high-performance work organizations (e.g., teamwork, problem solving).
- Work requires students to develop organizational and self-management skills.
Active Exploration

- Students spend significant amounts of time doing field-based work.
- Students engage in real investigations using a variety of methods, media, and sources.
- Students communicate what they learn through presentations.

Adult Connections

- Students meet and observe adults with relevant expertise and experience.
- Students work closely with at least one adult.
- Adults collaborate on the design and assessment of student work.

Assessment

- Students reflect regularly on their learning, using clear project criteria that they have helped to set.
- Adults from outside the classroom help students develop a sense of the real-world standards for this type of work.
- There are opportunities for regular assessment of student work through a range of methods, including exhibitions and portfolios.

The project-based learning activities at the end of each lesson are merely ideas; doing a project in its ideal form is no simple matter. As you begin to build on some of the project ideas in the lessons, it is good to start small, make it doable, and build in success for the participants.

Time

The time indication for each lesson is an estimation, not a statement of fact. The time it takes to complete each lesson is dependent on the following factors: the intent of the facilitator, past experiences of the students, interest of the students, how verbal and conversational the students are, and how your program is structured.

“All students don’t learn the same. Learning should be tailored around students so that it doesn’t force them to learn in one way. Learning should not be limited to the classroom. The whole world is a classroom. Take them out in the world and teach them.”

Robert Bell, YouthBuild Philadelphia
“Facilitate” means “to make easier.” Think about yourself as a facilitator — someone who helps people learn rather than someone who imposes learning upon them. Facilitating suggests the idea of a collaborative relationship between the instructor and students. A facilitator is a:

- Coach
- Listener
- Trainer
- Learner
- Manager of a group process

What follows are some good practices for facilitating, adapted from Strengthening Mentoring Programs: The National Mentoring Center Training Curriculum (Office of Juvenile Justice and Delinquency Prevention; Northwest Regional Education Laboratory, Public/Private Ventures, 2000)2.

**Before Each Lesson**

**Know the curriculum thoroughly**

- As necessary, customize activities, handouts, and overheads so they best address characteristics of your program and your specific group of students.
- Think about how you will facilitate the session, and be prepared to make on-the-spot adjustments. If, for example, you find you need to spend more time on one activity, you might need to shorten another.

**Make your learning environment conducive to group interaction.**

- Avoid a traditional classroom set-up. Depending on the size of your group, have tables large enough for all the students to sit around, write and converse.
- If small groups are going to be meeting as part of the lesson, make sure the area is large enough so that small groups can meet without distracting each other.

**Have everything ready.**

- Copy handouts and prepare overheads.
- Gather any required materials and equipment: newsprint, markers, masking tape, an overhead projector (and extension cord, if necessary), and anything else you might need for the lesson.

---

2 Reprinted with permission from the Northwest Regional Education Laboratory.
During Each Lesson

Create a comfortable learning environment.

- Create an atmosphere where participants are taken seriously and where they can also laugh. People are usually most open to new ideas when they are enjoying themselves and feel comfortable enough to risk making mistakes.

Pace the lesson appropriately.

- Encourage the exchange of ideas and information, while also keeping activities on track. Move things quickly enough to keep students from being bored, but slowly enough to make sure they absorb what is being discussed.
- Allow time throughout the session for students to ask questions and assist one another with seeking answers.

Model good listening, feedback, and problem-solving skills.

- Listen carefully and respectfully. Acknowledge what the young people say even if you don’t agree. People need to feel they are being listened to and their ideas and concerns are recognized as worthy contributions.
- Respond by guiding, not judging. Repeat and address key points.
- Help students develop collaborative problem-solving skills. Involve them in answering other participants’ question, and have them work together to arrive at solutions.

Think about how people learn best.

- Keep this point in mind: people remember about 20 percent of what they hear, 40 percent of what they hear and see, and 80 percent of what they discover for themselves.
- Use overheads and newsprint to help students see and remember. Newsprint is also a useful tool for group thinking and problem solving. Summarize major discussion points on newsprint. Post it on the walls around the room so you and your group can keep referring back to, and expanding upon, earlier ideas and contributions.
- Use the three effective strategies for facilitators — brainstorming, group work, and role plays — that are described below.
- Build in success. People learn best when they experience success frequently. Structure activities so students have a sense of accomplishment by the end.

Be yourself

- Know your limitations. If you don’t know the answer to a question, that’s okay. You don’t need to know all the answers. Learning is a collaborative process and you are a partner with your students in that endeavor.
- Maintain your sense of humor.
After Each Lesson

Get feedback from students.

• Prepare an evaluation form that asks for feedback on both the process and the content of the lesson. Distribute it at the end of the session, and ask students to complete it before they leave.

• Use their comments and opinions to plan and tailor your next lessons.

Reflect on what worked well and what did not.

• Don’t use the feedback forms to judge yourself. Instead, use the information to help you think through what went well from the students’ point of view, what you need to modify about the content, and what facilitation skills you should work on.

• Along with students’ feedback, give yourself feedback on the lesson. Think about the situations when students seemed involved, bored, stimulated, confused, angry, or amused. Based on your self-observations, make necessary adjustments in lesson content and your facilitation strategies.

Three Strategies for Effective Facilitation

While facilitating these lessons, you will want to take advantage of three important strategies: brainstorming, group work, and role plays.

1. Brainstorming

Brainstorming is an excellent way to generate ideas, and it is an effective technique for getting all students involved and contributing. This is especially true at the beginning of a lesson when you are trying to get everyone focused on the same subject.

When facilitating brainstorming activities, keep these points in mind:

• The purpose of brainstorming is to encourage all students to offer their thoughts and opinions in a nonjudgmental atmosphere.

• As students offer ideas, record them — all of them — on newsprint.

• Brainstorming is a free exchange of ideas on a topic; it is important to accept everyone’s contribution.

2. Group Work

During many activities, organizing the whole group into small groups of four to six students will encourage participation, involvement, and collaborative problem solving.
In some cases, assign, or have group members assign to themselves, these specific roles:

- **The leader** (like a facilitator) takes responsibility for helping the group complete its task. He or she helps group members work together and encourages everyone to participate in positive ways.
- **The recorder** writes down ideas from a brainstorming and anything else that needs to be recorded.
- **The reporter** presents the small group’s ideas and conclusions back to the whole group. Sometimes you might want to combine the recorder and reporter roles.

Make sure that over the course of several sessions student roles vary and that everyone has an opportunity to be the “leader.” Make sure participants understand that, whatever other roles they may have, everyone in the group works together to complete the group task. Everyone suggests ideas, gives opinions, agrees or disagrees with others, asks questions, and offers solutions.

### 3. Role plays

When preparing to facilitate role plays, keep these points in mind:

- Role plays are informal dramatizations through which students can try out ways they might handle a potential situation and increase their insight into someone else’s feelings, values, or attitudes.
- If the lesson includes suggested scenarios and characterizations for the role plays, you should modify these, where possible, to reflect actual situations that have arisen or are likely to arise in your particular program.
- Always allow time after the role plays for students to discuss their own and others’ “performances” and to talk about what they learned from the activity.
- Many people initially feel uncomfortable doing role plays. However, once they have some practice with them, they usually enjoy the experience and see that role plays can increase confidence, comfort, and self-esteem.

### What If Life Happens?

Nothing in life goes perfectly all the time, and facilitating an integrated curriculum is no exception. Despite all your planning and skillful facilitation, things can (and sometimes will) become unexpectedly challenging. Below are suggestions for handling some of those awkward situations.

**What if you notice that students’ eyes are glazing over?**

- Ask yourself if you’re talking too much without giving the students a chance to contribute. Get the participants engaged by structuring it so they have to do the thinking.
• Do a reality check. Are you addressing the needs students have presented?
• Do another reality check. Do you all need a break? Perhaps you could pass out Hershey’s Kisses!
• Inject some humor fast.

What if you don’t have enough students for the small group work you have planned?
• Use pairs instead.
• Change the activity to a whole group activity, and seat the the group in a circle.

What if there’s a heated discussion that is moving the group off track and taking up too much time?
• First let students know that you value their interest and enthusiasm.
• You can say, “Let’s stay with this discussion for two more minutes.” Then, after two minutes, sum up what’s been said and move on.
• Refer back to the aim of the lesson and say “We need to move on so let’s have two or three final comments on the topic.”
• Let the students suggest an alternate time and process to pursue the discussion so you can move ahead with the lesson.

What if you realize you’re going to run out of time before you’ve accomplished your goals?
• One option is to move quickly through the rest of the lesson. Cover everything, even though the coverage will not be as deep.
• Another option is to stop the activities a little earlier than planned and have a longer wrap-up session where you talk about the topics you didn’t get to. Relate those topics to the lesson’s goals.

Finally, be flexible, be creative, be honest, be a learner, be ready for anything, and, most important of all, have fun with Working Hands, Working Minds.
Overview of Health and Safety

Safe work behavior and safe working conditions are critically important issues for all construction workers. The development of safe work attitudes is necessary to protect such workers and enable them to work more productively. Safe work behavior involves both knowledge of specific safety procedures and having certain attitudes towards the importance of taking proper precautions.

The Construction Health and Safety unit consists of 13 lessons, grouped into categories addressing the following particular safety issues:

Safety Rules and Behavior

Lesson 1 — Staying Safe: Attitudes and Behavior
Students distinguish between attitudes and behavior that cause accidents and those that promote safety.

Lesson 2 — Mind and Body in the Workplace
Students examine the relationship between their own physical and mental health and safety in the work environment.

Lesson 3 — Safety Rules
Students develop safety rules based on scenarios and compare them to the worksite rules.

Lesson 4 — Reading Warning Signs
Students are introduced to typical safety rules and warnings in tool operating instructions.

Lesson 5 — Personal Safety Gear
Students learn how to identify and properly use safety gear.

Lesson 6 — Using Power Tools Safely
Students learn basic rules of safe power tool operation and practice the steps involved.

Lesson 7 — Safety Precautions: Protecting Your Back
Students learn to lift a variety of items properly and learn exercises to strengthen the back.

Lesson 8 — The Construction Site: Safety in Action
Students learn what to look for when checking for safety hazards on the site, then do observations to check for hazards.
Responding to Emergencies

Lesson 9 — Dealing with Emergencies: Twelve Basic Steps
Students learn the twelve basic steps for responding to emergencies and role play how to respond in emergency situations.

Lesson 10 — Communication for Safety
Students learn the steps for making emergency phone calls and role play how to make proper emergency calls.

Lesson 11 — Violence and Sexual Harassment in the Workplace
Students explore the issues of violence and sexual harassment in the workplace through frank and open discussion and small-group activities.

Safe Worksite Conditions

Lesson 12 — Health and Safety Organizations
Students research workers’ health and safety organizations and write letters of inquiry.

Portfolio Assessment

Lesson 13 — Workplace Safety Assessment
The portfolio assessment includes student self-assessment, student reflection on collected work and learning, instructor assessments, and instructor observation.

Competency Checklist

Upon satisfactory completion of this unit, student will be able to:

☐ List attitudes and behaviors that promote safety
☐ Propose rational solutions to safety problems
☐ Identify worksite safety rules
☐ Identify purpose of warning signs and instructions
☐ Identify names and uses of essential safety gear and consequences of improper use
☐ Demonstrate safe operation of power tools
☐ Demonstrate how to lift heavy objects safely
☐ Describe safety hazards found on a worksite and ways they might be prevented
- Describe the basic steps involved in responding to emergencies
- Demonstrate correct procedure for making emergency phone calls
- Identify the components of a first aid kit and tell how each is used
- Accurately complete accident report forms
- Identify key rights protected by the Right to Know Law
- Identify workers' health and safety organizations and their purposes
- Do a self-assessment of safety skills
- Demonstrate safe and appropriate behavior on the worksite

**Portfolio Assessment Checklist**

Upon completion of this unit, students should have the following items in their portfolios:

- Journal entries on attitudes and behaviors that cause accidents and those that promote safety (Lesson 1)
- Journal entry on health and wellness plan of action (Lesson 2)
- “Avoiding Safety Problems on the Site” (Lesson 2)
- Safety poster (Lesson 3)
- Warning sign (Lesson 4)
- Journal entry on personal reflection on a time when a warning was heeded or ignored (Lesson 4)
- “Safety Gear #2, Memory” (Lesson 5)
- “Tool Safety Review List” (Lesson 5)
- Safety Poem (Lesson 5)
- Power Tool Safety Presentation (Lesson 6)
- Journal entry on the importance of back health and the consequences of a back injury (Lesson 7)
- List of Potential Safety Hazards (Lesson 8)
- Safety Hazard Checklist (Lesson 8)
- Responding to an Emergency (Lesson 9)
- Using the First Aid Kit (Lesson 9)
☐ The Emergency Phone Call (Lesson 10)
☐ Journal entry identifying the traits of a good communicator (Lesson 10)
☐ Negative and positive interactions in the workplace (Lesson 11)
☐ Ways to prevent or handle violent or sexually inappropriate workplace situations (Lesson 11)
☐ “Workers’ Health and Safety Organizations” (Lesson 12)
☐ Business letter to Health and Safety Organizations (Lesson 12)
☐ Workplace Safety Self-Assessment (Lesson 13)
LESSON 1

Staying Safe: Attitudes and Behaviors

Aim

Students will examine the relationship between attitudes and behaviors and explore the types of attitudes and behaviors that create a safe work environment. In this lesson they will:

- Brainstorm, and record in their journals, attitudes and behaviors that cause accidents
- Brainstorm, and record in their journals, attitudes and behaviors that promote safety
- Perform a skit or role play that demonstrates their knowledge of safe and unsafe attitudes and behaviors in the workplace
Things to Consider

In this lesson students are asked to do a role play or skit that illustrates their knowledge of safe and unsafe attitudes and behaviors at the construction site. It will make the role play more fun and relevant if you have work gear and tools available for the students to use.

Materials, Tools, and Resources

- Handout: Attitudes and Behaviors that Cause Accidents
- Handout: Attitudes and Behaviors that Promote Safety
- Student journals

Key Terms

- Attitude
- Behavior

Time

1 hour
LESSON ONE  Staying Safe: Attitudes and Behaviors

Steps for Activity

1. Select three or four of the following sayings and write them on the chalkboard or flipchart paper:
   • “An ounce of prevention is worth a pound of cure.”
   • “Hindsight is 20/20.”
   • “Don’t go near the water unless you know how to swim.”
   • “If a job’s worth doing, it’s worth doing well.”
   • “It’s better to be safe than sorry.”
   • “Old habits die hard.”
   • “Look before you leap.”
   Lead a discussion about the sayings, asking questions like:
   • What do the proverbs or sayings mean to you?
   • Can you share a safety situation you have encountered that illustrates one of the sayings well?
   • Where do you think proverbs like these come from? Why do they exist?
   • Are there any other sayings or proverbs you know of that speak to being safe or taking proper precautions?

2. Tell students that in this lesson they will be examining the relationship between attitudes and behaviors. They will then explore the types of attitudes and behaviors that create a safe work environment.

   Briefly discuss with the class:
   • What is an “attitude?” (e.g., what you think, feel, believe)
   • What is a “behavior?” (e.g., what you do and how you act)
   • How do attitudes influence behavior?

   Ask students to share examples of some of their own attitudes and behaviors and help them to reflect on the relationship between their attitudes and behaviors. Before proceeding, make sure that students understand the difference between an attitude and a behavior.

3. Write the following two headings on the board in two columns:

   1. Attitudes that Cause Accidents
   2. Behaviors that Cause Accidents

   As a large group, ask students to brainstorm as many attitudes and behaviors as they can think of that might result in accidents on the job. Record their responses on the chalkboard or flipchart paper and ask students to record the brainstorm in their journals.
When the brainstorming is complete, distribute the handout “Attitudes and Behaviors that Cause Accidents.” Have students add any additional items from the handout to the lists in their journals.

Then discuss the list with the students by asking questions like:

- Why do you think a person might have these attitudes or display these behaviors?
- How might gender play a role in safety attitudes and behaviors?
- Are there times when you have displayed any of these behaviors? If you feel comfortable, share examples and explain your behavior and the related attitudes.
- How might a person work to change these attitudes and behaviors?

4. Write these next two headings on the board in two columns:

1. Attitudes that Promote Safety
2. Behaviors that Promote Safety

Ask students to list as many attitudes and behaviors as they can think of that help to promote safety on the job. Record their responses on the chalkboard or flipchart paper and ask students to record the brainstorm in their journals.

This time, when you have completed your brainstorm, distribute the handout “Attitudes and Behaviors that Promote Safety.” Have students add any additional items from the handout to the lists in their journals.

Then discuss the list with students by asking questions like:

- Can you describe a recent worksite (or other previous) experience when you displayed a “safe” attitude or behavior?
- How was your attitude/behavior helpful in the situation?
- How can you help others practice these safe attitudes and behaviors?

5. Tell students that they will now get to “show what they know” about safe and unsafe attitudes and behaviors at the construction site. Get the students into teams of three or four. Have each team chose an example from the “Attitudes and Behaviors that Cause Accidents” list and create for the class a skit or role play that expresses the chosen attitude or behavior.

Ask each team to first perform the skit showcasing the attitude or behavior that causes an accident and then perform the skit again, this time with a solution to the problem.

Allow adequate time for the students to create and perform their role plays.
Wrap Up

Have students give feedback on the skits or role plays. To help students reflect on the lesson, ask questions like:

- Were any of the situations familiar?
- How might others have solved the situation differently?
- Can someone summarize how attitudes help shape behavior?
- Do safe attitudes and behaviors carry over from one area of your life to another? (e.g., from the construction site to the classroom to home?) Can anyone give examples of this?
- Do you see your team members expressing safe attitudes and behaviors on the construction site? At school?
- How can you all work better together as a team to practice safe attitudes and behaviors on the construction site? In the classroom?

Creative Extensions

- Have each team perform their skit or role play without letting the large group know which attitude or behavior they have selected. After each team has performed, see if the other teams can identify the attitude and behavior that has just been acted out.

- Have students work in groups to research workplace safety issues or violations presented in movies or on TV. Students can then bring in video clips to share with the group and discuss the attitudes and behaviors that caused the problems and how they could be corrected. Here are some examples of movies or television shows to check out: *In Living Color* (Fireman Bill), *The Simpsons, Norma Rae* (movie), or *Home Improvement*. 
Project-Based Learning Activities

- Create a comic or cartoon illustrating an attitude or behavior that causes accidents. Then compile the illustrations into a safety ‘zine or brochure and have it reviewed by both a local artist and someone from a local construction company.

- Create a “safe attitudes and behaviors in the workplace” video. Have students videotape (and then edit) the role plays that they did in this lesson, or have them create new role plays. Who might be interested in using the video (schools, youth employment programs, etc.)? How will students market and distribute the video? Can they create a training workshop around the video that they deliver?
Attitudes and Behaviors that Cause Accidents

### Attitudes that Cause Accidents

- Not taking risks seriously: “I never got hurt before; why should I bother now?”
- Denial about the effects of drugs: “A few drinks can’t hurt.” “Getting high won’t affect me.”
- Impatience: “Doing a job safely takes too long.”
- Lack of self-respect: “I don’t care what happens to me.”
- Lack of respect for others: “I don’t care what happens to other people.”
- Depression: “Nothing matters.”
- Anger: “I’m too upset about something to care about safety.”
- Frustration: “It’s too difficult to bother with this.”
- Revenge: “I want to get back at somebody by not looking out for myself or others.”
- Avoiding responsibility: “It’s not up to me to think about safety.”
- Procrastinating: “I’ll deal with it later.”
- Wanting to impress others: “I’ll show them how cool I am by doing this without following safety rules.”
- Fear of looking weak: “Only weaklings need help.”
- Not wanting to be uncomfortable: “Safety equipment is too awkward or uncomfortable to wear.”
- Fear of showing ignorance: “I don’t want them to know I don’t know the rules, so I won’t ask.”

### Behaviors that Cause Accidents

- Taking risks
- Taking shortcuts
- Using alcohol or drugs on the job or before a shift
- Ignoring safety rules
- Not attending training sessions
- Taking risks
- Ignoring safety rules
- Using alcohol or drugs on the job or before a shift
- Not attentive to details
- Not controlling anger
- Excessive daydreaming
- Not controlling anger
- Not following proper procedures
- Taking shortcuts
- Intentionally creating unsafe situations or hurting others
- Not using safety equipment
- Not attending training sessions
- Not following proper procedures
- Showing off
- Ignoring safety rules to seem cool
- Not asking for help
- Not wearing safety equipment
- Not following the rules or safety precautions
- Not asking questions when in doubt
# Handout 2

## Attitudes and Behaviors that Promote Safety

<table>
<thead>
<tr>
<th>Attitudes that Promote Safety</th>
<th>LEAD TO</th>
<th>Behaviors that Promote Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-respect: “I don’t want to get hurt.”</td>
<td>➢ Getting enough sleep</td>
<td>➢ Getting enough sleep</td>
</tr>
<tr>
<td>Respect for others: “I don’t want anyone else to get hurt.”</td>
<td>➢ Respecting safety rules</td>
<td>➢ Respecting safety rules</td>
</tr>
<tr>
<td>Alertness: “I’d better concentrate.”</td>
<td>➢ Paying attention to others</td>
<td>➢ Paying attention to others</td>
</tr>
<tr>
<td>Attentiveness: “I need to pay attention so I know what to do.”</td>
<td>➢ Assisting others when necessary</td>
<td>➢ Assisting others when necessary</td>
</tr>
<tr>
<td>Patience: “If I slow down and work carefully, I won’t make mistakes.”</td>
<td>➢ Getting enough sleep</td>
<td>➢ Getting enough sleep</td>
</tr>
<tr>
<td>Interest in learning: “I wonder what is the right way to do this.”</td>
<td>➢ Exercise</td>
<td>➢ Exercise</td>
</tr>
<tr>
<td>Cooperation: “Does anyone need help?”</td>
<td>➢ Listening</td>
<td>➢ Listening</td>
</tr>
<tr>
<td>Willingness to seek help: “Who can assist me so nobody gets hurt?”</td>
<td>➢ Asking questions</td>
<td>➢ Asking questions</td>
</tr>
<tr>
<td>Thinking ahead: “What gear do I need before I start this job?”</td>
<td>➢ Paying attention to detail</td>
<td>➢ Paying attention to detail</td>
</tr>
<tr>
<td>Self-confidence and independent thinking: “I’m a strong, capable person. I know it won’t make me look weak if I follow the rules.”</td>
<td>➢ Reading safety instructions</td>
<td>➢ Reading safety instructions</td>
</tr>
<tr>
<td>➢ Attending trainings</td>
<td>➢ Willingness to work cooperatively with others</td>
<td>➢ Willingness to work cooperatively with others</td>
</tr>
<tr>
<td>➢ Asking for help</td>
<td>➢ Cooperating with others; being a team player</td>
<td>➢ Cooperating with others; being a team player</td>
</tr>
<tr>
<td>➢ Cooperating with others; being a team player</td>
<td>➢ Asking for help</td>
<td>➢ Asking for help</td>
</tr>
<tr>
<td>➢ Speaking out against safety hazards</td>
<td>➢ Speaking out against safety hazards</td>
<td>➢ Speaking out against safety hazards</td>
</tr>
</tbody>
</table>
LESSON 2

Mind and Body in the Workplace

Aim

Students will examine the relationship between their own physical and mental health and safety in the work environment. In this lesson, students will:

- Identify the connections between making good personal health decisions and creating a safe work environment
- Assess their current state of health and wellness
- Read an article on the effects of, and ways to reduce, stress in their lives
- Create a health and wellness plan of action in their journal
- Learn and practice relaxation techniques as a strategy for health and wellness
Time

1 hour

Materials, Tools, and Resources

- Handout: Mind and Body Self-Assessment
- Handout: Mind and Body in the Workplace: Minimize Your Stress for Health and Wellness (reading)
- Student journals

Key Terms

- Health
- Wellness
- Relaxation technique
Steps for Activity

1. Tell students that in this lesson they will explore the relationship between their own physical and mental health and safety in the workplace. Write the following prompt on the board or flipchart:

   - How might your personal health (mental and physical) affect safety and well-being in the workplace?

Lead a discussion with the students about the connection between their own personal health and safety in the workplace. If students have a hard time coming up with examples, use the following questions to encourage discussion:

   - If you or others use alcohol or drugs on the worksite, how does that affect a safe work environment?
   - What if alcohol or drugs are not used on the worksite, but used on a break? Does that have similar or different effects on workplace safety?
   - What effects does drinking or taking drugs in your off hours have on workplace safety?
   - If you or a co-worker are up until 2 a.m., and the next day employees have to be on the worksite at 7 a.m., how might not getting enough rest affect performance and safety?
   - If you are under a tremendous amount of stress from family problems, and carry this stress onto the worksite, how might this affect the safety and well-being of you or your co-workers?
   - Can you give other examples of how personal health and well-being are connected to safety in the workplace?

Record student responses on the chalkboard or flipchart paper.

2. Distribute the handout “Mind and Body Self-Assessment” and have students complete the assessment. When students are done, ask them to use the Mind and Body scoring sheet to tally their scores and identify several areas they can improve upon.

3. Have the students get into teams of three or four to debrief the self-assessments. Give them about 20 minutes to discuss the following:

   - In what areas do you need improvement?
   - What are possible root causes or underlying issues that influence your health choices?
   - How might your health and wellness choices influence your success and safety at work?
   - What can you do to improve your health and well-being score?
4. Distribute the reading, “Minimize Your Stress for Health and Wellness.” Have students either read it out loud or silently to themselves. When they have finished reading, lead a discussion about the reading with the large group. To promote dialogue, ask questions like:

- What does the article say are top stressors for adults? Are any of these a stressor for you?
- What other stressors get in the way of your health and wellness?
- What did the article say are some of the physical indicators of stress?
- How do you know when you are stressed out? What happens to your body?
- How do you deal with the stress?
- What can you do to prevent or control some of the stress in your life?
- What suggestions does the article give? Which suggestions do you think are good ones for you?

5. Tell students to take a few minutes to create a plan of action to achieve two of their health and wellness goals. (Let them use the assessment they took earlier to help them think about areas where they need improvement.) Ask them to write for 5–10 minutes in their journal, identifying two health or wellness-related goals and the steps they will take to achieve those goals.

Explain to students that in order to achieve our health and wellness goals, it’s important to build a “bag of tricks and strategies” that can help us to be successful. One trick or technique is “relaxation.” (Remind them that the article they just read mentioned “relaxation” as a health-inducing strategy.)

Ask students to give you feedback about relaxation techniques. To promote dialogue you might ask questions like:

- How many of you practice relaxation techniques at home?
- When might you practice relaxation techniques?
- What similar stress-reducing techniques can you think of?
- Why is it important to take quiet moments to yourself?
- Where at home, work, or school might be a quiet place for you to practice relaxation techniques?
Wrap Up

To help students reflect on the lesson, ask questions like:

• Do you have a better understanding of how your personal health and mental health affects workplace safety?

• Did you learn anything new today? Give an example.

• What goals did you set for yourself today? How can your YouthBuild community help you to meet your goals?

• How can you share what you learned with family members or friends?

• We talked a lot today about health and wellness. What types of jobs are available in that industry? Are there any “health and wellness” professionals in construction or the building trades? What might those jobs be? Might that type of work interest you and if so how can you get more information about those jobs?

Creative Extensions

• Invite someone from the community to do a guided meditation with students (perhaps on an ongoing basis) and discuss the benefits of good stress management and ways to get involved in a meditation group.

• Have students keep a food journal for one week and then analyze their diet. Discuss how diet might affect the way you feel and perform at work, then identify strategies for eating a healthy diet.

• Start your class by having students do stretching exercises. This is a great way to get the day started, to encourage healthy habits, and to prevent body injuries.

• Work with students to develop good time management skills. Have students log their activities and appointments for a week, then bring them to class for discussion. Students can create grids or pie charts to analyze how they use their time. Lead a discussion about the importance of getting enough sleep, planning your day to fit in work, homework, family, exercise, and recreation time.

• Encourage students to join a community center (YMCA, Boys and Girls Club), join a sports team, or explore offerings at a local hospital or alternative health clinic as a way to maintain good mental and physical health.
Project-Based Learning Activities

• Create a Healthy Living campaign to expose the community to the advantages of healthy living and the variety of methods for improving health and well being. Students might:
  
  Create an ad campaign with a slogan and posters
  Organize a health and wellness fair
  Conduct a health and wellness survey to better understand the needs of the community
  Write an article for the community newspaper or talk with local news programs highlighting important issues
  Develop a health and wellness resource guide
  Organize a series of health and wellness workshops open to community members

• Students can research and share information about a health issue of particular concern to their community. What local experts can students speak to? How will they present the information? Places to visit and “get the word out”: local schools, community centers, housing projects, or community gathering spots.
Mind and Body Self-Assessment

Directions: Answer the questions by circling the number which corresponds to the following ratings: 1=No Way 2=Almost Never 3=Sometimes 4=Usually; and 5=Always

1. Do you follow all the rules and procedures on the worksite?
   1 2 3 4 5

2. Do you avoid taking risks with your own and your co-workers’ safety?
   1 2 3 4 5

3. Do you accept constructive criticism about your health and safety on the job?
   1 2 3 4 5

4. Do you ask for help when you need it?
   1 2 3 4 5

5. Do you know and practice positive ways to reduce stress?
   1 2 3 4 5

6. Do you get enough sleep each night?
   1 2 3 4 5

7. Do you refrain from using alcohol or drugs before or during work?
   1 2 3 4 5

8. How often do you use the right protective gear at the construction site?
   1 2 3 4 5

9. Do you act in a responsible, safe manner on the construction site?
   1 2 3 4 5

10. Do you act in a responsible, safe manner at home?
    1 2 3 4 5

11. How often do you listen to and respond to your body’s signs of stress?
    1 2 3 4 5

12. How often do you exercise?
    Never 1 time/week 2 times/week 3 times/week Daily!
     (20 min.) (40 min.) (60 min.)

13. How often do you eat three well-balanced and healthy meals a day?
    1 2 3 4 5

14. How often do you feel positive about your options for a bright future?
    1 2 3 4 5
My Score:

Now use the Mind and Body Scoring Sheet below to analyze your score.

Areas I can improve on (items where you circled 3 or lower):

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

If you scored 63–70 points:

Your body is your temple! You make healthy choices and maintain a good balance in your life. Even though you may be physically fit, mentally sharp, and emotionally steady, remember that maintaining one's health and wellness is a life-long process. Think about the areas that you might improve while you continue to make those healthy choices!

If you scored 49–62 points:

The road to success is always under construction! You are on the right path, but you just need a little push to help you make the healthy choices and lifestyle changes that will ensure your success. Push to improve your weak areas while you revel in your strengths.

If you scored 14–48 points:

Rome was not built in a day! You need to take your health and wellness a bit more seriously. Start small. Seemingly little things — like taking a walk, cutting down on risky behaviors, or getting a good night’s sleep — can make all the difference in your overall health and well-being. You can build the mind and body you desire one healthy choice at a time.
Adults commonly list top stressors as family, finances, social isolation (having no one to confide in), and work. Our response to stress is not only mental. Under stress, our bodies behave as if under attack — whether the threat to our physical or emotional well-being is actual or imagined. Chemical “messengers” are released, producing physical changes that prepare the body for “fight or flight.” If the chemical reaction to stress continues over long periods of time, it may contribute to physical or emotional illness.

In order for us to be healthy, it is important to recognize the signs and symptoms of stress, and find preventative and positive ways to respond to stress. Here are some of the ways our body may respond to stress:

1. **Physical** — Headaches, grinding teeth, tight and dry throat, clenched jaws, chest pain, shortness of breath, pounding heart, high blood pressure, muscle aches, indigestion, constipation or diarrhea, increased perspiration, fatigue, insomnia, frequent illness.

2. **Psychological** — Anxiety, irritability, sadness, defensiveness, anger, hypersensitivity, apathy, depression, slowed thinking or racing thoughts, feelings of helplessness, hopelessness, worthlessness, lack of direction, or insecurity.

3. **Behavioral** — Overeating or loss of appetite, impatience, quickness to argue, procrastination, increased use of alcohol or drugs, increased smoking, withdrawal or isolation from others, neglect of responsibility, poor job performance, poor personal hygiene, change in religious practices, change in close family relationships.

Here are some self-care tips for preventing stress or dealing positively with stress:

1. **Take care of yourself** — Get good exercise, adequate sleep and regular, balanced meals. Exercise helps burn off the excess energy that stress can produce. Sleep helps us tackle problems in a refreshed state. Good nutrition has important short-term and long-term benefits.

2. **Develop friendships** — Having someone to confide in is important both on the job and off. Sharing feelings with people you trust can be a first step toward resolving your problems. Avoid relationships with “negative” friends who reinforce bad feelings.
3. **Take time off** — Take a vacation or a long weekend. During the workday, take short breaks to stretch, walk, breathe slowly, and relax.

4. **Manage your time** — Set realistic goals and deadlines. Plan projects accordingly. Do “must do” tasks first. Schedule difficult tasks for the time of day when you are most productive. Tackle easy tasks when you feel low on energy or motivation.

5. **Set limits** — When necessary, learn to say “no” in a friendly but firm manner.

6. **Choose battles wisely** — Don’t rush to argue every time someone disagrees with you. Keep a cool head and save your argument for things that really matter. Avoid pointless arguments altogether.

7. **Use calming skills** — Don’t act on your first impulse. Give your anger time to subside. Anger needs to be expressed, but it is often wise to do something that takes your mind off the situation. The break allows you to compose yourself and respond to the anger in a more effective manner.

8. **Avoid self-medication** — At times we may seek to use medication or alcohol as a response to stress. Such substances only mask the problem.

9. **If appropriate, look for less stressful job options** — but first ask yourself whether you have given your job a fair chance.

10. **Seek help** — If none of these steps relieve your feelings of stress, ask a health care professional for advice.

   Adapted from Mayo Clinic’s “Workplace Stress” (4/97)

*Reprinted from MayoClinic.com with permission of Mayo Foundation for Medical Education and Research, Rochester, MN 55905.*
LESSON 3

Safety Rules

Aim

Students will explore their own experiences with, and attitudes towards, unsafe work environments and discuss how unsafe workplace situations can be avoided or sensibly solved. In this lesson they will:

- Discuss personal experiences with safety issues in the workplace
- Problem solve “challenge” scenarios about unsafe situations on the worksite
- Develop workplace safety rules
- Compare the rules they created with their YouthBuild program’s rules
- Create posters that reinforce their site’s safety rules
Things to Consider

If students have not yet been exposed to your program’s worksite safety rules, this lesson can provide an exploratory introduction. If students are familiar with the safety rules, this lesson can be used for review. In either case, plan to have copies of your program’s safety rules available for review and comparison.

Materials, Tools, and Resources

- Handout: Avoiding Safety Problems on the Worksite
- Copies of the program’s safety rules
- Poster board
- Markers or poster paints

Key Terms

- Caution
- Hazard
- Precaution
- Prevention
- Accident

Time

1 hour
Steps for Activity

1. Tell students that in this lesson, they will explore general workplace safety issues and rules as well as their own program’s rules regarding a safe work environment. They will also have an opportunity to be creative and craft posters for the YouthBuild community that illustrate their program’s safety rules.

   Lead a discussion about students’ own experiences with safe and unsafe environments. Ask:
   • Have you or someone you know ever been in a situation at home, work, or school that was not safe?
   • What happened? How did the situation make you feel?
   • What were the long-term consequences of the situation?

   Ask students to describe their experiences and discuss them as a group. Raise questions about why the incidents happened, how they could have been avoided, and how individuals, workers, or employers could have acted differently.

2. Distribute the handout “Avoiding Safety Problems on the Worksit,” and read the instructions aloud.

   As a class, discuss each scenario and develop a rule that would prevent the problems described. Write the rules and the rationale behind the rule on the board and ask students to record these on their handouts.

3. Distribute copies of the program’s safety rules. Ask students to take turns reading the rules aloud. Compare your program’s safety rules to the rules that the students created in response to the scenarios on the handout.

   Discuss whether there are differences between the two lists, and then combine them to create a list that encompasses both.

4. Divide students into small groups and distribute poster board and markers to each group. Assign two or three of the safety rules to each group and ask them to collaborate and use symbols, words, or drawings to design posters that illustrate the rules. Each poster should include the rule as well as the reason for the rule.

   Encourage creative illustrations and give feedback and assistance as necessary.
Wrap Up

1. To help students reflect on the lesson, ask questions like:
   - Are you more likely to follow safety guidelines and rules when you understand the reasons behind them? Why?
   - How can you learn more about the reasons for the rules and guidelines at your worksite?
   - What would make you more likely to follow safety guidelines and rules on the worksite?
   - What should you do if you disagree with a safety rule?

2. Ask team members to hang the posters in visible places around the worksite.

Creative Extensions

- Have a guest speaker (or a panel of speakers) talk with the students about the importance of construction site or workplace safety. Before the speaker comes, have the students brainstorm a list of questions to ask. Some other ways to get the students involved are:
  - Have several students volunteer to “interview” the guest speaker, each asking three or four of the questions that the group brainstormed.
  - Have a student introduce the speaker to the group after they have reviewed a resume or bio.
  - Have students videotape and edit the presentation.

Some people that might be interesting to invite: an emergency room doctor or nurse, an OSHA representative, or a building trades labor representative. Make sure you invite the guest speaker to share a gory story! (Don’t forget to send a thank you note to the guest speaker.)

- Have students research local governing bodies or organizations that set and/or administer workplace and construction site safety standards. Encourage meaningful inquiry by having students brainstorm a list of questions that they would like to answer. Here are some possibilities:
  - Why were these governing bodies created?
  - Who has the power to create these organizations?
  - Why were certain laws/policies/regulations created?
  - How do they ensure that these laws or regulations are followed?
  - What are the penalties for not following these laws or regulations?

Have students creatively present their findings to the class.
• Ask the manager of a construction site to give the students a tour and discuss their safety rules. Have students pay attention to what safety signs are posted around the worksite and form a list of questions to ask. Here are a few to get you started:

  What is your company’s safety record?
  What safety training must workers have before beginning work?
  What are the most common safety hazards at this worksite?
  What are the most common violations?
  Tell us about the course of action that takes place after a worksite accident.

When students get back to the classroom have them reflect on the experience through a journal entry, group discussion, or poster board presentation.

• How do safety rules vary by worksite? Have students independently investigate and report on the important safety rules that are unique to different jobs, such as working at a nuclear reactor, working as a firefighter, or as a printing press operator.
Avoiding Safety Problems on the Worksite

Imagine that you are members of a contracting company that will be hiring new, inexperienced workers to work on a construction site. You are planning to offer a training course called “Safety on the Worksite.” The situations described here have come up on the worksite in the past, and you want to develop a set of rules that will prevent these problems from occurring. Write rules you think all workers need to know before they begin working. After each rule, explain why it is important.

Problem #1: On two occasions in the last year, laborers have had to be rushed to the hospital for cuts on their heads. In each case, the laborers’ heads were unprotected. On one occasion, a loose board fell from the ceiling. On another occasion, a worker accidentally dropped a box of nails off of a set of beams onto a worker’s head.

What could have been done to prevent these accidents?

Rule #1

Reason

Problem #2: An experienced carpenter forgot to bring his protective gear to work. He was in a hurry to cut a stud with a power saw and a sliver of wood flew into his eye and caused serious long-term injury.

What could have been done to prevent this accident?

Rule #2

Reason

Problem #3: Last year, a new worker did not wear her uniform but wore a long-sleeved shirt that got caught in the circular saw when she was talking to a co-worker. The saw pulled the worker’s hand into the machine and she lost two fingers.

What could have been done to prevent this accident?

Rule #3
Reason

Problem #4: A laborer brought a Walkman onto the site to listen to his favorite tape while he did demolition, so he did not hear his co-worker calling to warn people below that they were dropping debris into the dumpster. A 50-pound sheet of drywall fell on his head and injured him seriously.

What could have been done to prevent this accident?

Rule #4

Reason

Problem #5: Two carpenters joke around a lot on the site. On one occasion, one of the workers started a mock fight with the other, threw a fake punch, and tripped over some studs on the floor and sprained his ankle.

What could have been done to prevent this accident?

Rule #5

Reason

Problem #6: A carpenter asked a co-worker to pass her a hammer. The co-worker threw it to her when she wasn’t looking and it hit her on the shoulder, causing serious injury.

What could have been done to prevent this accident?

Rule #6

Reason

Problem #7: A worker uses his power tools frequently but hasn’t kept the blade sharp. When he used it recently the blade backfired and cut his hand.

Handout 1, cont’d.
Problem #8: A couple of workers walked onto a worksite wearing sneakers and sandals. The person wearing sandals stubbed her toe on a piece of wood. The person wearing sneakers stepped on an upturned nail and had to be rushed to the hospital for a tetanus shot.

What could have been done to prevent these accidents?

Rule #8

Reason

Problem #9: Because of the heat, a demolition worker did not wear his dust mask. Over a period of time, he inhaled a lot of soot and debris and developed serious respiratory problems.

What could have been done to prevent this accident?

Rule #9

Reason

Problem #10: A group of painters routinely leaves buckets of paint, tools, and nails lying on the floor at the end of the day. One morning, a worker walked through the site, tripped on a bucket of paint, and fell on an upturned nail which broke through the skin on his leg.

What could have been done to prevent this accident?

Rule #10
Reason

Problem #11: A carpenter drank a beer during his break. Afterwards, he felt sleepy and he had a hard time concentrating. He uses a handsaw to cut a small section of wood and got his finger in the way, injuring himself severely.

What could have been done to prevent this accident?

Rule #11

Reason

Problem #12: A worker smoked marijuana during her lunch break because it makes her feel more relaxed. After lunch, she hummed a song to herself and couldn’t concentrate while her supervisor explained the safe procedures to use when working on the roof and how to take proper precautions. She climbed up on the roof and didn’t place her feet properly. She slipped and fell and seriously injured her back.

What could have been done to prevent this accident?

Rule #12

Reason

Problem #13: A team of workers on the fourth floor of a building has begun to throw debris into a dumpster below. The supervisor on the street below didn’t know they were going to start throwing the debris yet because they hadn’t put the warning signs up and hadn’t warned him. He walked under the window and was hit on the back with a piece of plywood and had to be rushed to the hospital.

What could have been done to prevent this accident?

Rule #13

Reason
Problem #14: A worker climbed up onto a scaffold that did not have proper braces on it. The scaffolding snapped and he fell two stories.

What could have been done to prevent this accident?

Rule #14 ____________________________

____________________________________

Reason ________________________________

____________________________________
Reading Warning Signs

Aim

Students will interpret the safety and warning signs found in and around the construction site. In this lesson, they will:

- Identify the safety rules associated with typical warning signs
- Explain the reasons for the rules
- Create warning signs to hang in key locations at the worksite
Things to Consider

It might make the lesson more interesting and relevant for students if you replace the “Sample Warning Signs” handout with actual warning signs from your construction worksite.

Materials, Tools, and Resources

- Handout: Sample Warning Signs
- Warning signs from the work site, if available
- Blank bright or fluorescent letter-size paper for making warning signs
- Black markers

Key Terms

- Warning sign

Time

1.5 hours
Steps for Activity

1. Tell students that in this lesson they will identify and analyze common warning signs found in and around the construction site. Lead a discussion about how warning signs communicate important messages in a simple way, so that anyone who sees one will quickly understand that they need to do something or that a potentially hazardous situation may lie ahead. Encourage discussion with questions like:

   • Where do you see “warning” signs in the world around you? (Signs that say “stop,” “yield,” “slippery when wet,” “merge,” “caution — do not enter,” or “exit.”)
   • What types of warning signs do you see on or around the construction site?
   • What are some of the commonly used images or symbols used in warning signs? What do they mean?
   • How is color used in warning signs? What does red communicate? Yellow? Orange?
   • What are the advantages of making warning signs with simple images and consistent colors?

   Record responses on the chalkboard or overhead.

2. Distribute the handout “Sample Warning Signs.” Ask students to analyze each warning sign and write down the rule portrayed by each sign and the reason behind the rule. (If you have brought warning signs from the construction site, you might assign those as well.) When students have completed the worksheet, have the group discuss their answers, using discussion prompts such as:

   • Do all of you agree on the meaning of each of the warning signs?
   • Why might there be different interpretations?
   • What are the characteristics of an effective warning sign? (clearly recognizable symbols, bold words, appropriate use of color, etc.)
   • What are the implications of not understanding the meaning of a warning sign?
   • What should someone do if they are not sure what a warning sign means?
   • Are there other warning signs that should exist at your YouthBuild construction site?

3. Distribute paper and markers to each student and, after reviewing the characteristics of an effective warning sign, ask students to select a potentially hazardous situation and create a new YouthBuild warning sign for it.

   Upon completion, hang students’ warning signs in visible places around the school and construction site.
Wrap Up

1. When students have completed the activity, have them share their warning signs with one another. To help them reflect on the lesson, ask questions like:
   
   - Are you conscious of the warning signs around you, like posters, signs, chemical labels, or machinery warnings? How can you improve your observation skills?
   
   - If you were to change the color, shape, or symbol on a common warning sign, how would you convey the same message in a different way?
   
   - Why do some people ignore warning signs?

2. Tell students you would like them to take just a few minutes to reflect on the lesson through journal writing. Put the following journal prompt on the board:

   Can you remember a time when you were warned of something? How did you respond? What happened?

   Ask students to write for 5–10 minutes.

Creative Extensions

- Have students discuss safety issues they see in their own homes, then design a warning sign to make their home safer.

- Have a Polaroid Scavenger Hunt. Divide the group into teams and give each team a disposable Polaroid camera and a list of safety signs worth various point values (make rare signs worth the most, common signs worth the least.) Give the teams two hours to return with their photos of signs. The team with the most points wins.
“Metaphorical” warning signs. Normally warning signs relate to real, physical dangers to watch out for (i.e., “Warning — Road Curves,” or “Warning — Falling Rocks”). However, one can also make somewhat humorous warning signs that caution us about more abstract things. For example, “Warning — Inflation Ahead,” or “Warning — We Are Stressed Out.” Students can invent and construct such signs, and then post them around the room.

Have students set a goal for improving safety in their community. They might:

- Work to remove graffiti from warnings, traffic signs, or important resources such as hospitals and police stations.
- Research traffic safety issues in your community and work with community members to petition the city for changes such as adding speed bumps, crosswalks, stop lights, or clearing materials that inhibit vision.
Handout 1

Sample Warning Signs

Identify these warning signs and write the reason for the rules they indicate.

1. **CAUTION**
   - **Rule:**
   - **Reason:**

2. **WET FLOOR**
   - **Rule:**
   - **Reason:**

3. **HIGH NOISE AREA**
   - **Rule:**
   - **Reason:**

4. **HARD HAT AREA**
   - **Rule:**
   - **Reason:**

5. **DANGER**
   - **Rule:**
   - **Reason:**

6. **HIGH VOLTAGE**
   - **Rule:**
   - **Reason:**

7. **Corrosive Avoid Contact**
   - **Rule:**
   - **Reason:**

8. **FLAMMABLE**
   - **Rule:**
   - **Reason:**

9. **Electrical Hazard**
   - **Rule:**
   - **Rule:**
LESSON
5

Personal Safety Gear

Aim

Students will learn about the personal safety gear that is essential for working safely on a construction site. In this lesson, they will:

- Identify essential safety gear and connect it to the appropriate body part
- Describe the purposes of the equipment and consequences of using it improperly
- Write an “ode” (a poem) that describes the importance of safety gear on the worksite
Things to Consider

Please note that this lesson is only a general introduction to construction safety gear. Not covered here is other essential gear related to specific trades within the construction industry, e.g., electrical, plumbing, masonry.

In this lesson, students play a game using various safety gear items (listed below in the Materials, Tools, and Resources section). If you are unable to locate an item on this list, it can be replaced with a related item. You will only need to create a new game question and name tag for that item.

You might wish to review the “Safety Gear Go” Game Rules before playing it with students, as well as the facilitator’s guide that contains the questions and answers for both teams.

Note that the following handouts need to be photocopied and cut into strips before the game begins:

• Two sets of “Safety Gear Name Tags” (cut into strips)
• Two sets of “Safety Gear Go” Questions (cut into strips and put into a bag or envelope)

Set the protective gear that you have gathered on a table in full view of all the students. Randomly tape the names of the gear from the handout “Safety Gear Names Tags” (two sets) to a wall or chalkboard near or behind the table.

Materials, Tools, and Resources

• “Safety Gear Go” game items: rubber gloves, safety glasses/goggles, asbestos gloves, steel-toed shoes/boots, dust mask, hard hat/helmet, air filter, earplugs, saw guard, safety belt
• Handout: Safety Gear Name Tags (two sets, cut into strips)
• Handout: “Safety Gear Go” Questions (two sets, cut into strips and put into a bag or envelope)
• Handout: Safety Gear
• Handout: “Safety Gear Go” Game Rules
• Handout: “Safety Gear Go” Facilitator’s Guide
• Student journals
• Small prizes or candy (optional)
• Handout: Ode to Safety Gear

Key Terms

• Equipment
• Gear/safety gear
• Ode

Time

1 hour
Steps for Activity

1. Tell students that in this lesson they will learn about the gear that is essential for working safely on a construction site and discuss the consequences of not properly using safety gear.

Lead a discussion with students about the importance of using the proper safety gear when completing a job. To promote dialogue, ask questions like:

- If you have worked on a construction site before, what type of safety gear is necessary and why? What type of safety gear do you see at the YouthBuild construction site?
- What type of safety gear were you required to use in other places you have worked? Why?
- What are examples of safety gear that other jobs or industries might require? (Examples: fireman, stock clerk at a grocery store, high-tech field or janitorial.)
- What happens when you are not properly geared up?

2. Explain that in order for students to become familiar with a variety of safety gear, the situations in which they must be used, and the body parts the gear protects, students will do an activity called “Safety Gear Go.” Here are directions to get the game started:

a. Ask for two volunteers to play the part of the “mannequins” for the game.

b. Divide the remaining students into two teams.

c. Assign a “mannequin” to each team and have all students gather at the side of the room opposite the table the safety gear is placed on.

d. Ask each team to select a team name and write it on the chalkboard or flipchart paper (which is where students will be keeping score).

Give each team a copy of the handout “Safety Gear Go Game Rules.” Go over the rules of the game with the students.

3. Pass out a “Safety Gear #1” worksheet to each team. Have each team fill out the worksheet as they use the safety gear. (You might have each team select a “recorder.”) Tell students they should describe the name of the gear, what it is used for, and what part of the anatomy it protects.

4. When you have finished the game, bring the students back together as a large group. Ask students to turn over (or turn in) their completed “Safety Gear” worksheet and then a new copy of the “Safety Gear” handout to each student. Ask students to complete the second handout from memory.
Wrap Up

1. As a large group, go over the correct answers for the “Safety Gear #2” worksheet.

2. To help students reflect on the importance of safety gear, ask them to write an “ode to safety gear” poem. Students can write an ode to their hard hat, steel-toed boots, or dust mask. (If time permits, students can research famous poets like Pablo Neruda who bring odes to life.) Distribute the handout “Ode to Safety Gear” as an example.

3. Have students share their completed odes and find a prominent place to display them in the classroom or around the worksite.

Creative Extensions

- Have the group create a safety mascot like Smokey the Bear, or McGruff the Crime Dog. Students can discuss the characteristic of the mascot they would like to create, draw the character, create a slogan and a logo, and use the safety mascot on worksite posters and forms.

- Have students respond to the following in their journal:

  You have just finished learning about safety gear by playing this game. Create your own lesson to teach others about what you have learned.

Project-Based Learning Activities

- Have students work with younger children to make paper dolls outfitted with safety gear that can be changed to fit the job. Have students use this opportunity to talk to kids about the construction trades and the importance of using proper safety gear and procedures.

- Students can do a job shadow or informational interview. They can investigate, and do a photo essay of, the particular safety gear that is needed in a specialized field, such as electrical construction. If participants research different jobs, they can then share their findings with the group.
“Safety Gear Go” Game Rules

1. Each team will be given a bag or envelope containing eight descriptions of commonly used safety gear (these are the game questions).

2. The “mannequin” for each team will hold this envelope. The mannequin will release only one question at a time.

3. The first team member draws a question from the bag or envelope, then runs to the other side of the room to gather the appropriate piece of safety gear that fits the question. All team members should give input to help get the correct piece of gear.

4. After getting the safety gear, the team member must select the correct name tag from the board, then run back to place the safety gear on the appropriate body part of their “mannequin” and the name tag under their team’s name on the board or flipchart.

5. If the team member fails to gather the correct gear or name tag, the question goes back in the envelope or bag and another team member selects a new question.

6. When the team member finds the right combination, the “mannequin” allows the next team member to draw a question from the bag/envelope and repeat the process.

7. The first team to complete all eight questions and fill out the “Safety Gear #1” handout wins.
Questions and Answers

Question 1. You would use this when working with caustic liquids, electric wires, sharp edges, or concrete to protect you from cuts, splinters, shock, skin reactions, puncture wounds, and cracking and drying hands.
Answer: Rubber gloves.

Question 2. You would use this when working with tools that cut, grind, or chisel to prevent flying fragments of wood or metal from piercing or irritating your eyes.
Answer: Safety glasses / goggles.

Question 3. You would use this at all times, particularly in situations where there might be falling materials, to protect you from injuries to the skull, head, and brain.
Answer: Hard hat/helmet.

Question 4. You would use this when grinding, cutting, pounding, or operating loud machinery to protect you from hearing damage or hearing loss.
Answer: Earplugs.

Question 5. You would use this when working with hot surfaces or sharp edges to protect you from injuries to your hands, such as burns, cuts, or punctures wounds.
Answer: Asbestos gloves.

Question 6. You would use this at all times, particularly in situations where materials can fall or where sharp objects may be on the ground, to protect you from broken toes or feet.
Answer: Steel-toed shoes/boots.

Question 7. You would use this when climbing on ladders or scaffolding to protect you from bodily injuries if you were to fall.
Answer: Safety belt.

Question 8. You would use this when doing demolition, sanding sheet rock, or working in dusty areas to protect you from inhaling particles that can cause coughing or lung problems.
Answer: Dust mask.
"Safety Gear Go" Questions

Question 1. You would use this when working with caustic liquids, electric wires, sharp edges, or concrete to protect you from cuts, splinters, shock, skin reactions, puncture wounds, and cracking and drying hands.

Question 2. You would use this when working with tools that cut, grind, or chisel to prevent flying fragments of wood or metal from piercing or irritating your eyes.

Question 3. You would use this at all times, particularly in situations where there might be falling materials, to protect you from injuries to the skull, head, and brain.

Question 4. You would use this when grinding, cutting, pounding, or operating loud machinery to protect you from hearing damage or hearing loss.

Question 5. You would use this when working with hot surfaces or sharp edges to protect you from injuries to your hands, such as burns, cuts, or punctures wounds.

Question 6. You would use this at all times, particularly in situations where materials can fall or where sharp objects may be on the ground, to protect you from broken toes or feet.

Question 7. You would use this when climbing on ladders or scaffolding to protect you from bodily injuries if you were to fall.

Question 8. You would use this when doing demolition, sanding sheet rock, or working in dusty areas to protect you from inhaling particles that can cause coughing or lung problems.
### Handout 4

**“Safety Gear Go” Name Tags**

<table>
<thead>
<tr>
<th>Left Column</th>
<th>Right Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubber gloves</td>
<td>Safety glasses/goggles</td>
</tr>
<tr>
<td>Asbestos gloves</td>
<td>Steel-toed shoes/boots</td>
</tr>
<tr>
<td>Dust mask</td>
<td>Hard hat/helmet</td>
</tr>
<tr>
<td>Earplugs</td>
<td>Safety belt</td>
</tr>
</tbody>
</table>
### Handout 5

#### Safety Gear

<table>
<thead>
<tr>
<th>GEAR</th>
<th>USE</th>
<th>CONSEQUENCES OF IMPROPER USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ode to Safety Gear

by Nathaniel Rose

O gear so dear that keeps me safe
My life is in thine hands
I wouldn’t last a day at work
Without my fireproof pants
Ye goggles, poor in fashion sense,
Ye helmet, an eye sore
Yet when you save my head and eyes
I love thee more and more
Using Power Tools Safely

Aim

Students will discuss general tool safety and understand the safety rules related to the use of power tools. In this lesson, students will:

- Discuss the rules for safe tool operation
- Recognize the potential dangers of unsafe tool operation
- Work in small groups to explore safe operation of assorted power tools
- Present safe operation guidelines for tool operation to the group
Time
1.5 hours

Key Terms
- Tool safety

Materials, Tools, and Resources
- Various tools with instructions for safe operation and storage
- Handout: General Safety Rules
- Handout: Power Tool Safety Presentation
Steps for Activity

1. Tell students that in this lesson they will explore safe and unsafe tool use. Lead a discussion encouraging dialogue with questions like:
   - Why is it important to use tools safely?
   - Have you (or someone you’ve known) ever used a tool unsafely? What were the consequences? What can we learn from your experience?
   - What is the best way to learn how to use tools safely?
   - Think about the tools that you use (or might use) on the YouthBuild construction site. Give specific examples of what could happen if you didn’t use each of those tools properly.

2. Distribute the handout “General Safety Rules.” Ask for several volunteers to read the handout and then discuss with students where they might find rules like these and why it is important to know these rules. To promote dialogue ask questions like:
   - Why are these rules important?
   - Has anyone not followed one of these rules on the construction site and had a negative consequence as a result? Explain.
   - Who should have the authority to make up and enforce the rules on the construction site?
   - Are some rules more important than others?
   - Of these general safety rules which are most important on the YouthBuild construction site?

3. Divide the students into teams of 4–5. Make sure that you have one power tool with operating directions for each team. Tell students that it is each team’s job to explore the power tool they have in front of them, read the directions for operating and storing the tool, and do a presentation to the larger group on how to safely use the tool.

   Distribute a copy of the worksheet “Power Tool Safety Presentation” to each group. Give each group a different tool and the safety instructions for operating and storing that tool. Allow 15–20 minutes for each team to examine the tool, study the instructions, and then fill out the worksheet. When everyone has completed the activity, bring the teams together and ask each team to present its information to the rest of the class.

   Lead a discussion with the students about the presentations. Allow students to ask clarifying questions to ensure that everyone understands the information presented. To promote dialogue, use prompts like:
   - What tools seem difficult or complicated to use safely? Why?
   - What tools seem simple or trouble-free to use safely? Why?
   - How do you think your ideas about the difficulty of using certain tools might influence your safety behavior?
• How do you think your ideas about the tool being simple to use might influence your safety behavior?
• Give some examples of times when you should not use certain tools.

Wrap Up

1. Encourage students to reflect on the lesson by asking questions like:
   • Can someone summarize why safe tool use is important?
   • Do you feel more knowledgeable about the right or safe way to use the tools we have here today?
   • How can you remind yourself to use all tools safely at all times?
   • Give examples of other times in your life when it might be crucial to read and understand directions. What could be the consequences if you were unable to understand those directions? (Examples might include: directions on household cleaners — improper use could result in injury to people or furniture; directions for preparing food — improper use could result in food poisoning; directions for taking medication — you could overdose or the drug might react badly with another drug; directions for putting together a piece of furniture — it might not fit right.)

2. Have each group post their “Power Tool Safety Presentation” worksheet near where the tool is stored.
   If possible, make copies of all the completed “Power Tool Safety Presentation” worksheets for students to keep in their portfolios and use as a reference when needed.

Creative Extensions

• Have students come up with “mnemonic devices” to remember important safety rules. Mnemonic devices are simple groupings, rhymes, acronyms, or visual associations used for remembering information that will be memorized.

For instance, to remember the order of the colors in a rainbow, you can remember the “rainbow man” Roy G. Biv. Each letter in his name stands for a color: red, orange, yellow, green, blue, indigo, and violet. For more information on mnemonic devices and additional examples, see the Tools and Resources section.
LESSON SIX Using Power Tools Safely

• Arrange for the class to tour a local apprentice guild or construction worksite and to see a hands-on demonstration on using power tools safely. Prior to the field trip, students can make posters showing the “dos and don’ts” of power tool use and formulate questions for their site-visit host. While students are at the worksite you might consider having someone videotape the demonstration. When you get back to the classroom or worksite, let students share their experience with others. Don’t forget to have your students send a follow-up note. The following are some things your worksite host might share with students:

  An example of safe vs. unsafe attire to wear around power tools.

  Typical safety equipment used by construction workers (goggles, masks, gloves, hard hats, etc.)

  Show safety devices on common tools and how to know when they are properly employed.

  Demonstrate how to maintain tools. Exhibit some tools that were not maintained well or damaged due to misuse.

  Stories of “close calls” when power tools were not used safely.

• Have students create a handbook about how to use common power tools safely. Students can compile stories, cartoons, illustrations, diagrams, instructions, interviews, and photographs to create a resource for YouthBuild students or “handy” people in the community. Things to consider: setting the tone for the handbook’s audience, and how the handbook will be reproduced and distributed. It would be good to get an “expert” to review or edit the handbook before printing it.

Project-Based Learning Activities

• Have students work in small groups to simplify the operating instructions and safety rules for various power tools and then make posters or flyers to post in the workplace or where power tools are stored.

• Let students compare the “General Safety Rules” handout with your YouthBuild safety rules. Have them assess whether the YouthBuild rules are adequately comprehensive.
General Safety Rules

Failure to follow the SAFETY RULES listed below, and other basic safety precautions, may result in serious personal injury.

Work Area

- KEEP WORK AREAS CLEAN. Cluttered areas and benches invite accidents.
- AVOID DANGEROUS ENVIRONMENTS. Don’t use power tools in damp or wet locations. Keep work areas well lit. Do not expose power tools to rain. Do not use power tools in presence of flammable liquids or gases.
- KEEP CHILDREN AWAY. Do not let children or other visitors touch tools or extension cords.

Personal Safety

- DRESS PROPERLY. Do not wear loose clothing or jewelry because they can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
- USE SAFETY GLASSES. Have safety glasses available for visitors.
- WEAR FACE OR DUST MASK if cutting operation is dusty.
- GUARD AGAINST ELECTRIC SHOCK. Do not let body come into contact with grounded surfaces, e.g., pipes, radiators, ranges or refrigerator enclosures.
- STAY ALERT. Watch what you are doing. Use common sense. Do not operate tools when you are tired.
- DISCONNECT TOOLS when not in use, before servicing, when changing blades, bits, etc.
- REMOVE ADJUSTING KEYS AND WRENCHES. Always see that keys and adjusting wrenches are removed from tool before turning it on.
- DON’T OVERREACH. Keep proper footing and balance at all times.
- CHECK DAMAGED PARTS. Before continuing to use the tool, carefully check guards or other damaged parts to determine that the tool will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other damaged parts should be properly repainted or replaced. Have defective switches replaced. Do not use the tool if switch does not turn it on or off.
• ONLY TRAINED REPAIRPERSONS should attempt electrical or mechanical repairs. Contact an authorized service dealer. Use only authorized replacement parts because any others may create a hazard.

Tool Use

• DON’T FORCE A TOOL. It will do the job better and safer at the rate for which it was designed.

• USE THE RIGHT TOOL. Don’t force a small tool or attachment to do the job of a heavy-duty tool. Don’t use a tool for purpose not intended, e.g., don’t use a circular saw for cutting tree limbs or logs.

• SECURE WORK. Use clamps or a vice to hold work. It’s safer than using your hand and it frees both hands to operate the tool.

• USE OUTDOOR EXTENSION CORDS FOR OUTDOOR WORK. When a tool is used outdoors, use only extension cords suitable for use outdoors and marked with suffix W-A or W.

Tool Care

• STORE IDLE TOOLS. When not in use, tools should be stored in a dry, high, or locked up place — out of the reach of children.

• DON’T ABUSE CORDS. Never carry a tool by the cord or yank it to disconnect it from the receptacle. Keep the cord from heat, oil, and sharp edges.

• DON’T ALTER OR MISUSE TOOLS. These tools are precision-built. Any alteration or modification not specified is misuse and may result in an accident or damaged tool.

• AVOID GASEOUS AREAS. Do not operate portable electric tools in gaseous or explosive atmospheres. Motors in these tools normally spark and the sparks might ignite fumes.

• MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace them if damaged. Keep handles dry, clean, and free from oil and grease.

• WARNING! Before connecting any tool to a power source be sure the voltage supplied is the same as that specified on the nameplate of the tool. A power source with voltage greater than that specified for the tool can result in SERIOUS INJURY to the user — as well as damage to the tool. DO NOT PLUG IN THE TOOL. Using a power source with voltage less than the nameplate rating is harmful to the motor.
Power Tool Safety Presentation

Our Team: 

Our Tool: 

Important information about the work area
1. 
2. 
3. 

Important information for personal safety
1. 
2. 
3. 
4. 
5. 
6. 

Important information for tool use
1. 
2. 
3. 
4. 

Important information for tool care
1. 
2. 
3. 
4. 
5.
Safety Precautions: Protecting Your Back

**Aim**

Students will identify strategies for taking care of their backs and demonstrate techniques for proper lifting in order to prevent injuries on the worksite. In this lesson, they will:

- Explain the importance of proper lifting techniques
- Demonstrate how to correctly lift items to prevent injury
- Practice back-strengthening exercises
- Reflect in their journal on the importance of back health and the seriousness of back injuries
**Things to Consider**

**This lesson requires** that you have a variety of items available for the students to practice lifting and carrying. Examples include: a heavy bag of concrete, assorted sizes and weights of plywood, cement blocks, a box of bricks, long studs, etc.

**For the back exercise activity,** it would be helpful to have mats or a carpeted space for students to use while they practice sit-ups and other back strengthening exercises. After these exercises are introduced, consider ways to incorporate them into your regular routine.

**In this lesson** students work in pairs to examine each other’s spine. You might think about the body space or personal boundary issues that could arise during this activity. Depending on your students, you might allow them to select the partners they feel comfortable with or you might choose to pre-select the pairs yourself. You might also consider whether or not you need to have a brief discussion with the students about keeping the activity within safe and appropriate boundaries.

**Materials, Tools, and Resources**

- Assorted heavy objects of varying shapes, sizes and weights
- Empty boxes labeled 2 lbs., 20 lbs., 50 lbs., 80 lbs., and 200 lbs.
- Colored markers
- Floor mats or carpeted area
- Handout: The Human Spine
- Handout: Lifting and Carrying
- Handout: Strengthening Your Back

**Key Terms**

- Spine
- Vertebrae

**Time**

1 hour
LESSON SEVEN  Safety Precautions: Protecting Your Back

Steps for Activity

1. Tell students that in this lesson they will learn about the human back, how it is put together, how back injuries can occur, and what they can do to minimize the possibility of back injuries on the worksite. To help students connect with the topic at hand, ask the following questions:
   - Have you (or someone you know) ever had a back injury?
   - How did it happen?
   - How did it affect you (her/him)?
   - How long did the back injury last?
   - Have you (or the other person) made changes to prevent that type of injury from happening again? If so, describe.
   - What type of activities do you think are most likely to hurt your back?
   - In what places do you do these activities most often?

2. Explain to students that before they learn about and practice healthy lifting it would be beneficial for them to examine and learn more about the back in general. To do this, students will partner with one another and each team member will serve as a model.

3. When students are in pairs, first have them feel their own spines. Then have students take turns feeling one another’s backbone (also called vertebral columns or spinal column). Tell students:
   
   Each person should bend forward so that they can feel the bony knob at the top-middle of the back, at the base of the neck. This is one of your vertebrae. Each pair should then count the number of vertebrae going down each other’s back and compare the findings. See if you come up with the same number.

4. Distribute the handout “The Human Spine” and have students count the number of vertebrae on the handout then compare it with the numbers students arrived at during their exercise.

5. Tell students that they will now practice proper lifting techniques. Place empty boxes labeled 2 lbs., 20 lbs., 50 lbs., 80 lbs., and 200 lbs. on the floor in the middle of the room. Ask students to pretend that the boxes actually weigh the amount they are labeled. Have several students take turns demonstrating how they would lift and carry each of the boxes to a specified location. Afterward, discuss the techniques students used to lift the boxes. Ask students:
   - Did you notice any differences between the techniques used to lift the boxes? Describe the techniques.
• How does each technique affect the back?
• Which techniques do you think are the safest?

5. Distribute the handout “Lifting and Carrying,” and read it aloud as a group. Then place assorted items of varying shapes, sizes, and weights on the floor.

Get the students into teams of four or five. Allow students to work in their small teams to practice proper lifting and carrying techniques. Ask students to follow the instructions on the handout and to provide one another with constructive feedback. Allow students to practice lifting and carrying until they can lift and carry several items safely and correctly. As facilitator, float between the groups, and offer constructive feedback and guidance.

After everyone has had ample opportunity to practice, bring the students back together into a large group. Ask for several volunteers to demonstrate each step of correctly lifting and carrying objects of various weights and sizes. Ask students to provide constructive feedback to the volunteers.

6. Tell students that one way to help ensure that one does not get a back injury is to develop and maintain a strong and healthy back. Distribute the handout “Strengthening Your Back.” Have students work in pairs to read the handout and practice the exercises.

Wrap Up

1. To help students reflect on the lesson, ask questions like:
   • Which jobs/careers do you think are most stressful for a worker’s back?
   • Why do some jobs have as a requirement the ability to lift a specific number of pounds? What are the legal implications?
   • Do any of you have plans to start an exercise program to strengthen your back? Why or why not?

2. To help students understand the importance of back health and the seriousness of back injuries, ask them to write for five minutes in their journals in answer to the following questions:
   • How would your life be changed if you had a serious back injury that forced you to stay in bed?
   • What would you be able to do and not do?
   • What support would you need?
   • How would it affect your family, school, and work life?
   • How would you feel?
Creative Extensions

• Invite a chiropractor to introduce students to the tools of his or her trade. Ask the chiropractor to discuss the structure of the human back, the importance of back care and the kinds of problems that laborers can have with their backs.

• Have students look up spinal and muscular injuries, eye injuries, or lung problems in a medical or health encyclopedia (or on the Internet) and report to the class on how to avoid such injuries.

Project-Based Learning Activities

• Have students create a video on proper lifting procedures. Treat the video like a professional educational video, writing a script beforehand and practicing roles. Arrange for a professional videographer to work with the students and critique the final product.

• Have students create illustrated children’s books about the skeletal system, the eye, the nervous system, or the respiratory system. The books could include a description and picture of the system as well as information about how to keep the system healthy and protect it from injury. Distribute the books to a local school or non-profit organization.
Handout 1

The Human Spine

Construction Health and Safety
Lifting and Carrying

Think Before You Lift!

Ask yourself:
1. What’s the best way to hold this?
2. Is my path clear?
3. Where do I want to set it down?
4. How will I set it down?
5. Do I need help?

General Rules for Lifting

1. Stand close to the object.
2. Squat down — bend at the knees and keep your back straight.
3. Grasp the object firmly.
4. Lift with your legs.
5. Hold the object close to your body.

General Rules for Carrying

1. Keep the load close.
2. Don’t change your grip.
3. Avoid twisting your body — move your feet instead.
4. Don’t block your vision — if the load is too large, get someone to help.
5. Face the spot you are headed for.

General Rules for Unloading

1. Bend your knees.
2. Keep your back straight.
3. Be careful of fingers and toes — plan to move them out of the way when the load is set down.
4. Place the load on a bench or table by resting it on the edge and pushing it forward with your arms and body.

Team Lifts

1. Work with others of the same height and build, if possible.
2. Choose one person to call signals and make decisions.
3. Lift from the hips at the same time, then raise the load to the level that is comfortable to all.
4. Move slowly and in the same direction.

Lifting Overhead
1. Spread your feet, with one foot slightly forward.
2. Don’t stand on a chair or a box — use a sturdy platform or ladder.
3. Get help if the load is too heavy or awkward.

Lifting and Carrying Plywood: Two People
1. First person raises one corner. Second person raises corner on same side.
2. First person lifts and grips underneath.
3. First person leads, facing the direction they are going in, holding the plywood with one hand underneath and one hand above.
4. Second person follows, also holding one hand above and one underneath.

Lifting and Carrying Lumber
1. Lift lumber one piece at a time, if necessary, or tie more than one stud together.
2. Carry pieces of lumber with one hand in front, underneath, and one hand behind, over the top but gripping underneath.
3. Carry on one side and close to body to stabilize load.
Handout 3

**Strengthening Your Back**

Check with your doctor before starting an exercise program

- Always start slowly.
- Increase the difficulty of the exercises gradually.
- Repeat exercises only as long as they are comfortable.
- Don’t “push it” if you feel any serious discomfort or pain.

**Bent Leg Sit-ups**

- Lie flat on your back on the mat.
- Bend knees.
- Keep feet flat on the floor.
- Keep arms at sides or folded across your chest.
- Raise your head, chest and shoulders off the floor.
- Lower and relax.
- Repeat.

1. 2.
Knee to Chest

- Lie flat on your back on the mat with legs straight.
- Grasp one knee and bring it as close to your chest as possible.
- Hold for a count of ten.
- Lower and relax.
- Repeat.
- For a more difficult stretch, grasp both knees, and bring both legs up at once.

Hamstring Stretch

- Lie flat on your back on the mat.
- Bend knees.
- Keep feet flat on the floor.
- Slowly raise one leg, straightening your knee.
- Hold for a count of five.
- Lower the leg to the floor, keeping it straight.
- Relax.
- Switch legs.
The Construction Site: Safety in Action

Aim

Students will discuss potential safety hazards at the construction site and their possible effects on productivity. In this lesson, students will:

- Develop a list of potential safety hazards at the construction site
- Identify the dangers of such hazards to workers and productivity
- “Inspect” a YouthBuild worksite for positive safety practices and safety hazards and check against a predetermined safety checklist
Things to Consider

For this lesson arrange time for students to observe “safety in action” at a YouthBuild construction site. Plan for students to observe at a time when work is taking place, but when their presence will not be too disruptive.

In this lesson students play a game similar to Pictionary. To prepare for the game you will need to:

- Make transparencies for an overhead projector of the “Hazard House Sketch” and “Hazard House Example.”
- Create a large drawing of the “Hazard House Sketch” on butcher or flipchart paper. (A simple way to do this is to trace the projected image from the “Hazard House Sketch” transparency.)
- Prepare the “Hazard Game Cards” by cutting them apart.

It is extremely important for your students to have an opportunity to practice what they have learned in this lesson. As a follow-up, consider having students do the safety role plays in the Tools and Resources section of this Unit.

Materials, Tools, and Resources

- Handout: Safety Hazards at the Worksite
- Transparency: Hazard House Sketch (to help create a large drawing of the sketch)
- Transparency: Hazard House Example
- Hazard Game Cards (cut along lines)
- Handout: Safety in Action Checklist
- Clipboards and pens or pencils for each student
- Colored markers
- Butcher paper
- Tape
- Student journals

Key Terms

- Hazard
- Safety hazard
LESSON EIGHT  The Construction Site: Safety in Action

Steps for Activity

1. Tell students that in this lesson they will explore worksite hazards and they will also have the opportunity to observe “safety in action” at one of the YouthBuild construction sites.

Write the word HAZARD on the chalkboard or flipchart paper. Ask students to define what the word means to them and encourage students to share examples of hazards. When you feel that students have a good understanding of the term, write the following prompt on the board or flipchart:

- What types of hazards might be present at a construction site?

Have students brainstorm in their journals as many responses as they can think of. As students share items from their lists, write their responses on the board or flipchart.

2. Using the list that the students have just brainstormed, discuss the possible injuries or accidents that could occur from such hazards. To promote dialogue, ask questions like:

- Why is this a safety hazard?
- How might this hazard endanger workers?
- How might this hazard affect the cost of the project?
- How might this hazard interfere with meeting a deadline?
- What are some simple safety precautions you can take?

3. Divide students into two teams. Distribute the handout “Safety Hazards at the Worksite.” Tell students that in order for them to learn about safety hazards that can occur on the construction site, they will be doing an activity called “Hazard House.” Explain that the game is like Pictionary and the items to be drawn or illustrated will all come from the list on the handout that you just gave them. Inform students that they have only have five minutes to study the handout before the activity begins.

While students prepare, tape the large butcher-paper drawing of “Hazard House” to a wall or chalkboard.

4. After students have had five minutes to study the handout, ask them put it away and explain the rules as follows:

A. Each team will take turns sending a team member up to the board where they will select a Hazards Game Card and then draw or illustrate the safety hazard listed on the “Hazard House” drawing. Students can only draw or illustrate the item and no symbols or words can be used.
(If students need more explanation, use the “Hazard House Example” transparency to show an example.)

B. The team that is “up” has two minutes to guess the hazard being drawn or illustrated. When the correct answer is given, students should label it on the “Hazard House” drawing. If that team does not guess correctly, the other team has an opportunity to “steal” the point by a correct guess.

C. The team that gets the most correct answers wins.

5. After the activity is over, use the completed drawing of “Hazard House” to discuss the following questions:

- Has anyone witnessed any of these hazards at a YouthBuild (or other) construction site? If so, were there any consequences?
- Are there other hazards you can think of that are not listed on the “hazard house?”
- Why do you think these hazards might occur on the worksite?
- How can one person’s behavior or actions affect everyone working on the project?
- How can these hazards be prevented?

6. After you finish the discussion, pass out the “Safety in Action Checklist” handout to students. Review the checklist with students and tell them they will use the checklist to “evaluate” a YouthBuild worksite. Tell students the point of the evaluation is to observe “safety in action.” They should look for blatant or potential safety hazards and positive safety practices as well.

Before you go to the site, have a discussion with the students about any worksite-related information they might need to know (e.g., wear hard hats, certain places are off limits, be courteous and as non-disruptive as possible, wait to ask questions until the end of the observation period).

7. When students are at the construction site, have them walk around and record the positive safety practices and hazards they observe.

8. If possible, allow students to share their observations with the construction or safety manager of the site.
Wrap Up

After allowing sufficient time for students to complete their observations, bring the students back together to share their findings. To help students reflect on the site visit and the lesson, ask the following questions:

• What good safety practices did you observe?
• What did you see as the most common safety hazard(s)?
• What should be done to remedy the hazard?
• What could be done to make this hazard less likely to occur?
• How can you protect yourself and other workers from these hazards?
• Does being a good team member help to create a hazard-free worksite? Why or why not?
• What can each of you do to help ensure that your worksite will be safe?
• This lesson was about safety on the construction site, but how might the things you learned in this lesson apply to other areas of your life? For example, how might you practice “safety in the home” or “safety in the classroom” based on the things you’ve learned here?

Have students put their completed “Safety in Action Checklist” in their portfolios.

Creative Extensions

• Arrange to have students visit other construction worksites (perhaps a different YouthBuild worksite or even an outside construction company that you have a relationship with) to look for safety practices and hazards. To document observations use the “Safety in Action Checklist” handout or have students design their own checklist.

• Invite a representative from the local OSHA office to speak with your students about penalties companies pay for disregarding the rules.

Project-Based Learning Activities

• Ergonomics is the study of how the physical setup of an office or other workplace affects the physical health and productivity of the workers. Have students investigate good and bad ergonomic practices for a construction company, and then make a presentation to the YouthBuild Board of Directors on how their program addresses this safety issue.

• Have students learn about some of the jobs that specialize in studying and improving safety at various workplaces. Students can present their findings in a binder that can be used to help future YouthBuild students learn about various career possibilities.
Handout 1

Safety Hazards at the Worksite

- Falling objects
- Faulty rungs on ladders
- No guardrails on scaffold
- Slipping hazards
- Loose nails on floor
- Electrical connections near water
- Tools left lying around
- Work area cluttered
- Power tools plugged in when not in use
- Damaged cords on power tools
Activity Sheet

Hazard Game Cards

Faulty rungs on ladders

Power tools plugged in when not in use

Work area cluttered

Falling objects

Electrical connections near water

Tools lying around

No guardrails on scaffold

Loose nails on floor

Slipping hazards

Damaged cords on power tools
Handout 2

Safety in Action Checklist

Name of Observer:
Location of construction site:
Date: Time:

Describe several positive safety practices that you observed:

Check off any hazards you observed. Make comments if necessary.

☐ Falling objects

☐ Faulty rungs on ladders

☐ No guardrails on scaffold

☐ Slipping hazards

☐ Loose nails on floor

☐ Electrical connections near water

☐ Tools lying around

☐ Work area cluttered

☐ Power tools plugged in when not in use

☐ Damaged cords on power tools

☐ Other
Hazard House Drawing

WORKING HANDS, WORKING MINDS
Dealing with Emergencies

Aim

Students will identify and demonstrate the basic steps to take in the event of an emergency. Students become familiar with the contents of a first aid kit and how each item is used. In this lesson, students will:

- Review the contents of a first aid kit
- Learn and record the purpose of each item
- Identify the location of the first aid kit at the YouthBuild center
- Brainstorm responses to emergency situations
- Describe in their journal a correct response to an emergency situation
Things to Consider

It is strongly recommended that students participate in a full CPR/first aid course. The course will help students develop confidence about performing emergency procedures and allow them to gain CPR/first aid certification, which they can put on their resumes. Consider contracting with your local Red Cross (or another organization that provides similar services) to teach the course to your students. These classes generally take four to six hours to complete.

For this lesson, you will need a guest speaker who can talk to your students about the contents of a first aid kit and the purpose/use of each item. A fire fighter or other emergency specialist would make an ideal presenter. Strategies to get the students engaged with this activity might include: having the students brainstorm guest speakers to invite; having students make the invitation phone call; letting students develop questions for the speaker; asking for a student volunteer to moderate the question and answer time at the end of the presentation; and finding a creative way for students to thank the presenter.

After the guest speaker presents the information on how to use items in the first aid kit, it would be beneficial for students to practice using items like the thermometer and various bandages. Consider purchasing extra supplies such as disposable gloves, gauze and tape, and triangular bandages for this purpose.

As a follow-up to this lesson, consider having students complete the sample accident reports found in the Tools and Resources section of this Unit. Completing these accident reports is an important exercise in document literacy and will also help the students apply what they learned in this lesson.

Materials, Tools, and Resources

- First aid kit, containing: box of adhesive bandages; four-by-four inch gauze dressings; roll of gauze bandages; adhesive tape; disposable gloves; flashlight and batteries; triangular bandage; antiseptic cream; scissors; thermometer and ice bag or ice pack
- Handout: Using the First Aid Kit
- Handout: Emergency Scenarios
- Handout: What to Do in an Emergency: 12 Basic Steps

Key Terms

- Emergency
- First Aid
- CPR
- The Red Cross
Steps for Activity

1. Tell students that in this lesson they will become familiar with the contents of YouthBuild’s first aid kit and learn the basic steps to take in the event of an emergency. A guest speaker will teach them how to use the items and then they will have an opportunity to practice using various items from the first aid kit.

2. Lead a discussion with the students about the importance of knowing what to do in an emergency, knowing where the first aid kit is in a building, and knowing how to use the items in the first aid kit. To promote dialogue ask questions like:

   • Do you feel confident that you would know what to do if an accident occurred on the job? Why or why not?
   • Has anyone ever taken a first aid/CPR training course? If so, what did you learn? Did the course make you more confident in your ability to handle emergency medical situations?
   • Have you ever been in an emergency situation where you’ve had to either call 9-1-1 or provide first aid? Describe the incident. Do you feel you handled the situation in the best manner possible? How might you have handled the situation more efficiently?
   • Where is the first aid kit located at the YouthBuild center? Is there also one at the construction site? Why is that an important thing to know?
   • Has anyone ever had to use the first aid kit at the YouthBuild center? At a worksite? Describe what happened.
   • Where in town can you take a first aid/CPR training class?

3. Bring the students’ attention to the first aid kit. Show them various items from the kit and ask students if they know how to use, or have ever used, the item. Tell the students that the guest speaker will teach the students the purpose of each item and how each is used. Introduce the guest speaker and allow her or him ample time to talk with the students.

4. When the guest speaker has finished presenting, if possible, allow students to get hands-on experience using items from the first aid kit. Also, be sure to discuss the location of your site’s first aid kit with the students.

5. After the guest speaker has left, distribute the handout “Using the First Aid Kit.” Ask students to complete it as a review of the presentation. When students have completed the handout, review the correct answers as a group. Have students keep the completed handout for their portfolios.
6. Explain to students that just as it is important to know where to find and how to use first aid supplies, it is equally important to be familiar with emergency response procedures. Tell students that for the remainder of the lesson the group will practice how to respond to various emergency situations. Distribute the handout: “What to Do in an Emergency: 12 Basic Steps,” and discuss it as a large group. To make sure students understand what was read, you might choose to ask clarifying questions about the handout.

7. Pass out the handout “Emergency Scenarios.” Depending on the size of your group, you can either go over the scenarios as a large or small group activity. If your group is small enough, ask for three students to act out each of the scenarios for the large group. If your group is large, have students get into smaller teams of three and give each group a scenario to practice among themselves. Then bring the large group back together and ask for two or three teams to present their role play to the larger group.

Each scenario calls for the following roles: one student is the victim, another student portrays the emergency response dispatcher, and the final student acts as the person who makes the emergency phone call. Instruct students to use the “12 Basic Steps” handout as a guide to act out the steps in order of importance. After each role play is performed, have students discuss:

- Were all of the steps followed?
- What went well?
- What could have been done differently?

Optional: After all role plays have been performed, have the class present team members awards such as “best actor,” “best actress,” “best skit,” or “most accurate response.”
Wrap Up

To help students reflect on the lesson, ask them to respond to the following in their journal:

- Create an emergency situation that would make you very nervous and be a challenge to respond to. Briefly describe this scenario in your journal using words and sketches to illustrate the situation. Then demonstrate what you have learned about responding to emergencies by explaining your response to the emergency you created.

Allow 10 minutes or so for students to write and then ask for several volunteers to share and discuss their emergency situations and responses. Students can offer alternative responses as part of the discussion.

Creative Extensions

- Have students write a “YouthBuild Guide to First Aid” after completing a first aid course. The guide might be a review of basic first aid procedures that will be kept inside the first aid kit or posted in a prominent place and on the worksite.

- Have students create colorful posters that illustrate the 12 basic steps for emergency response.

- Use the guest speaker from this lesson as an opportunity to expose students to new career choices. Ask the speaker to talk about the work that he or she does, the rewards and challenges of the job, and the education and training requirements necessary. Have students develop additional questions based on their interests.
Project-Based Learning Activities

- Ask the local fire department to give a demonstration on the proper use of fire extinguishers on the worksite. Students should be given opportunities to contact the fire department, schedule the appointment, prepare questions in advance, and write thank you letters after the demonstration. Students can follow up the activity by creating posters that explain proper fire extinguisher use. Students can check their own fire extinguishers and perform a service for the community’s elderly population by offering to check their home fire extinguishers. To extend this project they could raise money to buy extinguishers in low-income homes that don’t have extinguishers.

- Arrange for students to do job shadows or interviews with professionals who work in the emergency response field. Possibilities might include: medical personnel, emergency response technicians, firefighters, police and security officers, life guards, or caregivers for physically disabled individuals. Based on these job shadows/interviews they could design and publish a “Guide to Careers in the Emergency Response Field.” After it is reviewed by the local professionals who were interviewed, it could be edited for use in a middle school.
Handout 1

Using the First Aid Kit

Directions: Explain what each of the following items might be used for.

- Adhesive bandages
- Adhesive tape
- Antiseptic cream
- Disposable gloves
- Flashlight and batteries
- Four-by-four inch gauze dressings
- Gauze bandages
- Ice bag or ice pack
- Scissors
- Thermometer
- Triangular bandage
What to Do in an Emergency: 12 Basic Steps

1. **Be sure the victim is in a safe place.** If the victim is in a safe place, do not move her/him. Do not move the victim unless he is in danger where he is; otherwise you could cause further injury.

2. **Check the victim’s breathing.** If the victim has stopped breathing, administer mouth-to-mouth resuscitation. (You will need to take a first aid course to learn proper procedures for giving mouth-to-mouth.) Always check to make sure an unconscious person keeps breathing.

3. **Stop severe bleeding.** Put direct pressure on the wound, using a clean piece of cloth or your bare hand. Elevate the wound if it is on a leg or arm. If bleeding does not stop, you will have to find a pressure point and press on that. (You will need to take a first aid course to learn proper procedures for stopping bleeding.)

4. **Check for poisoning.** If you think poison was involved, call the poison control center right away and tell them what the victim swallowed and how much. Follow the doctor’s instructions exactly. If the doctor says to make the victim vomit, give her syrup of ipecac, but do not do so unless the doctor says to. Vomiting could cause even more harm to the victim, depending on what the poison is.

   For inhaled poison: Get the victim to fresh air right away. Make sure to protect yourself from fumes. Give mouth-to-mouth resuscitation if the victim has stopped breathing.

5. **Call for help.** Telephone, or have someone else telephone, the appropriate authorities who can give swift advice and assistance. Always have a list of emergency phone numbers available. Describe the situation, what happened, what is being done, and what is needed. State your name and the name of the victim. Describe the location and give the phone number of where you are. Check to be sure the operator has all the information he or she needs before you hang up.

6. **Stay calm.** If you act calm and in control, it helps the victim and everyone around you stay calm. Talk to the victim in a reassuring voice so he or she stays calm and doesn’t hurt himself or herself more.

7. **Prevent shock.** A victim can go into shock if his or her body is in distress. Signs of shock are damp, cold, pale skin; fast, weak, uneven pulse; uneven breathing, and complaints of thirst. Prevent shock by making sure the victim is covered loosely and kept warm and not moved unless absolutely necessary.
8. **Prevent chills.** A victim can become chilled if his/her body is exposed to cold air, has a drop in body temperature, or is perspiring excessively. Have a warm blanket available to wrap around victim in the event of chills; use clean jackets or other large items if no blanket is available.

9. **Ask what happened.** Ask the victim, if conscious, and those who saw the accident, to describe what occurred.

10. **Look for emergency medical information, like a card or bracelet.** These might provide information about the person’s condition. Emergency medical information should be given when making emergency phone calls.

11. **Take care of minor injuries.** (You will need to take a first aid course to learn proper procedures for doing this.)

12. **Always have a reason for what you do.** Be careful and make judgments based on information and knowledge of first aid.
Emergency Scenarios

Scenario 1: At ten in the morning on a cold November day, Joe falls suddenly from the scaffold he was working on, from a height of 20 feet. David was working on the scaffold with him. You are working on the ground, and when you rush to him, you find him lying on his back and moaning. He is on the ground in a secure place. You lean over him and say, “Where does it hurt?” and Joe says, “All over. My back. My legs.” Then he begins to shake and cry. You notice that he is wearing a medical bracelet that saying he is a diabetic.

List, in order of importance, the steps you should follow in responding to this emergency.

Scenario 2: It is a hot day in August and a group of carpenters is working outside. Ralph is working with a circular saw when he suddenly screams out in pain. Milli, who is working with him, yells, “Oh, no! Ralph cut off his finger!” The foreman runs over and shouts, “You idiot! How could you do that?” Another worker starts yelling at the boss, “You jerk! It was an accident!” Ralph, who is bleeding badly, moans and then passes out on the ground.

List, in order of importance, the steps you should follow in responding to this emergency.

Scenario 3: It is a humid, hot day in July and Samantha is alone painting the walls in an enclosed area with little ventilation. You find her kneeling on the floor with her head down, breathing hard, and mumbling. You notice that the paint fumes are very strong.

List, in order of importance, the steps you should follow in responding to this emergency.

Scenario 4: Nydia is working on the gut rehabilitation of an abandoned building. She walks, without her hardhat, under a spot where two workers are laying new beams. A beam slips out of a worker’s hands and falls. He yells, “Watch out!” but Nydia is not able to move fast enough and gets hit on the head and shoulders by the beam. She falls to the floor, bleeding from her head and nose. She is shaking and whimpering. One of the workers from the upper floor runs over to her and attempts to move her quickly to another place. “I’m so sorry!” he says over and over. There is a lot of commotion as workers huddle around her, talking loudly but not knowing what to do.

List, in order of importance, the steps you should follow in responding to this emergency.
Communication for Safety

**Aim**

Students will discuss the importance of effective communication at the worksite and using problem-solving skills to develop and practice strategies for improving their workplace communication skills. In this lesson students will:

- Identify the traits of a good communicator and record key traits in their journals
- Demonstrate the ability to process, convey, and follow detailed directions
- Develop strategies for addressing difficult workplace communication issues
- Develop a list of emergency telephone numbers needed in the event of an emergency on the construction site
- Identify important information to convey when making an emergency phone call
- Role play emergency situations in which students need to place an emergency call
**Things to Consider**

**For this lesson,** it would be helpful to have a number of phone directories available when students work in small groups to find emergency phone numbers.

**Materials, Tools, and Resources**

- Handout: The Emergency Phone Call
- Handout: Communication Role Play: Scenarios
- Telephone directories
- Student Journals

**Key Terms**

- Non-threatening
- Effective communication

**Time**

2 hours
Steps for Activity

1. Tell students that in this lesson they will discuss the importance of being a good communicator and how effective communication among workers helps to create a safe work environment. Lead a discussion with the students about what it means to be an effective communicator. Write their responses on the board or flipchart and ask them to record key points in their journals. To promote dialogue, ask questions like:

   - What makes someone a good communicator? (Examples might include: they present their ideas clearly; they get right to the point; they are easy to understand; they are non-threatening; or they are attentive and respectful.)

   - Have you ever heard the phrase, “It’s not what you say, but how you say it?” What does this mean to you? What meaning does it have for workplace communication?

   - Besides the words we use, how else do we communicate our thoughts and feelings? For instance, how can you know the difference between a humorous, sarcastic, or a serious comment? How do body language, tone of voice, volume, and facial expression affect the meaning of the words?

   - Is good communication only the responsibility of the person who is talking? For example, what is the job of the person who is the listener?

2. Ask students to discuss the ways in which effective communication skills are important on the job. Use prompts like:

   - How might good communication skills improve your success and safety on the worksite?

   - How might a lack of good communication skills endanger you or your co-workers?

   - How might good communication help you to deal with difficult or controversial issues that might arise at the worksite, e.g., conflict with your supervisor, a co-worker not following safety guidelines or rules, or co-workers telling offensive (racist, sexist, homophobic, etc.) jokes?

3. Explain to students that we must all work to develop and maintain good communication skills and that the process is ongoing. However, there are times when these skills are of the utmost importance, for example, in the case of an emergency. To help the students develop or improve those skills, the next part of the lesson will focus on how to communicate effectively in emergency situations.

4. Divide students into groups of three or four. Distribute phone directories and the handout “Emergency Phone Calls” to each group. Have students work in their small group to look up phone numbers and complete the handout. Lead a discussion about making emergency phone calls. Ask students questions like:
• How many of you have ever had to make emergency phone calls? Who did you call? Did you know what number to call right away? If not, how did you find the number? How did you feel during the phone call?

• Has anyone had to make an emergency call from a worksite? If so, describe the situation and how you handled it.

• When you have had to make emergency calls do you feel you communicated well?

• What could you have done to improve your communication?

• Is there a phone at our construction worksite? If not, where is the nearest phone?

Ask for volunteers to read each of the steps of “What to Say During an Emergency Call.”

5. Have students get into pairs. Give each pair a copy of the “Communication Role Play: Scenarios.” Allow each team to choose one of the emergency scenarios and take turns role playing the procedure they would use to make an emergency phone call during that particular situation.
Wrap Up

1. If time permits, ask for several teams to volunteer to share their role plays with the larger group.

2. To help students reflect on the lesson ask questions like:
   - How do you react to stressful situations? What could you do to improve your communication skills when you are under stress?
   - What communication strengths do you have? How could you use these skills to make your worksite a safe and enjoyable place?
   - What communications skills would you like to learn or improve upon? What are some ways you can gain or practice those skills?

3. Encourage students to record, in a safe place, the emergency numbers that they looked up. Ask for volunteers to post copies of their completed “Emergency Phone Calls” handout near all phones at the construction site and in the program’s offices.

Creative Extensions

- Have students write a short essay or act out a skit to respond to difficult work situations. Use the handout “Communication Role Play Scenarios” and “What Would You Do?” in the Tool and Resources section.

- We presently live in a “communication age.” Have students develop ways that they can join the conversation. Examples include: creating a YouthBuild website with features on safety and other issues, joining a building trades list-serve, or create a worksite safety CD-ROM game.
Project-Based Learning Activities

• Have students research the effects that poor communication can have on the safety of buildings and communities. Have them research incidents or catastrophes that have occurred around the world due to unsafe structures or a lack of regard for safe practices. Let them explore the role of communication in these catastrophes. Expand this activity by allowing students to use their research to make a video on how poor communication can have a negative influence on safety in the workplace. Perhaps distribute it to local construction agencies or community development organizations.
Handout 1

The Emergency Phone Call

🔥 Important Phone Numbers:

_police

Fire Department

Rescue Squad

Hospital Emergency Room

🔥 Poison Control Center

Important Information:

Address of the worksite

----------------------------------

----------------------------------

Directions or main cross streets

----------------------------------

----------------------------------

Phone number of this phone

----------------------------------

Name of supervisor

----------------------------------

What to Say during an Emergency Call

1. Identify the service you need (fire, police, medical).
2. Identify yourself.
3. Give the address and location of the emergency.
4. Give the phone number of the phone you are calling from.
5. Explain what happened.
6. Explain how many people are injured or in danger.
7. Describe any steps that have been taken (first aid, getting people out of the building, etc.).
8. Always hang up last.
Communication Role Play: Scenarios

Decide what should be done in the following situations.

Players: Worker and Supervisor
Scene: The worker is asked to handle a power tool he has not been trained to use. His supervisor insists that he operate it, telling him it’s not that different from other tools, and that they have a deadline. The worker is nervous about operating it, but does not want to lose his job.

Players: Two co-workers and Supervisor
Scene: Two co-workers are asked by their supervisor to go up on a scaffold. They can tell by observation that the scaffold is unstable. They discuss between themselves what to do.

Players: Two co-workers
Scene: One worker is about to operate a power saw; her co-worker reminds her to wear safety goggles, but she dismisses it as unimportant.

Players: Two co-workers
Scene: A worker wears a walkman onto the site; another worker tries to convince him not to wear it on the site. He tells him it’s not allowed and explains why.

Players: Worker and Supervisor
Scene: The worker is injured using a power saw with a dull blade; the supervisor claims it was the worker’s fault, but he disagrees.

Players: Worker and Supervisor
Scene: The worker refuses to wear his hardhat because he says it is hot and uncomfortable; his supervisor tries to convince him to wear it.

Players: Worker and Supervisor
Scene: The worker wants to discourage her supervisor from plugging in power tool near water.

Players: Two co-workers
Scene: One worker has long sleeves and is about to operate a circular saw. The other worker tries to discourage him from doing it.

Players: Worker and Supervisor
Scene: The supervisor rushes the worker to finish a job cutting plywood. The worker knows he will injure himself if he doesn’t work carefully and slowly.
Violence and Sexual Harassment in the Workplace

Aim

Students will explore the issues of violence and sexual harassment in the workplace through frank discussion and small-group activities. In this lesson they will:

- Define violence and sexual harassment in the workplace
- Problem solve “challenge” scenarios about inappropriate workplace interactions
- Discuss appropriate personal boundaries in the workplace
- Identify negative and positive interactions in the workplace
- Identify ways to prevent or handle violent or sexually inappropriate workplace situations
- Create a personal statement of their own philosophy about safe actions and interactions in the workplace
The topic of violence and sexual harassment in the workplace is sensitive and can be difficult to facilitate. It might be helpful for you to explore your own experiences and be prepared to respond to the complex questions and responses that might occur. You might choose to bring in an outside facilitator trained in sexual harassment issues to co-present this lesson with you.

Materials, Tools, and Resources

- Handout: Sexual Harassment Scenarios
- Handout: Sexual Harassment: What to Do If It Happens to You
- Handout: Sample Informal Resolution Letter

Key Terms

- Workplace violence
- Harassment
- Sexual harassment
- Verbal abuse
- Appropriate/inappropriate workplace interaction
- Positive/negative personal statement
**Steps for Activity**

1. Tell students that in this lesson they will explore the issues of sexual harassment and violence in the workplace. Explain that these issues are quite complex and are sometimes difficult to talk about, because we don’t get much practice doing so. However, tell the group that they will try to explore the issues in a non-threatening way.

   Depending on the maturity and experience level of the students and your experience facilitating sensitive topics, you might choose at this point to help the group set “ground rules” for the discussion.

2. Put the following terms (in two columns) on the chalkboard or flipchart paper:
   - Violence/abuse in the workplace
   - Sexual harassment in the workplace

   Ask students what the terms mean to them. Explain to students that workplace violence or abuse can be either verbal or physical. As a group define both terms and record all student responses/definitions on the chalkboard or flipchart paper. The list might include:

   **COLUMN 1: Violence/ abuse in the workplace**
   - Obsessive name calling
   - Relentless teasing/making fun of a co-worker
   - Unwanted physical contact like hitting, even in a “playful” manner
   - Verbal threats
   - Non-verbal intimidation
   - Yelling and screaming in anger
   - Using angry, hurtful words
   - Stepping into someone’s “personal space”
   - Using racial epitaphs or slurs
   - Wearing clothing items that communicate racist or homophobic ideas

   **COLUMN 2: Sexual harassment in the workplace**
   - Verbal comments about body parts
   - Howling, catcalls, or whistles
   - Leers or stares
   - Pressure for sexual activity
   - Unwanted physical contact like touching, even in a “playful” manner
   - Stepping into someone’s “personal space”
   - Wearing clothing items that display sexually explicit language or pictures
   - Using language that is sexual in nature
   - Touching oneself on the worksite (e.g., “crotch grabbing”)
   - Viewing sexually explicit material on the internet
3. Lead a discussion with the group about violence, abusive behavior, and sexual harassment in the workplace. To help promote dialogue ask questions like:

- Do you feel these are important issues to discuss? Why or why not?
- Looking at the definitions we brainstormed for both terms, how are violence and sexual harassment in the workplace similar? How do they differ?
- Where might people get messages that sexual harassment or violence in the workplace is ok?
- Do you think that the violence that occurs in other parts of our society has anything to do with violence/sexual harassment in the workplace? Why or why not? Give examples.
- How do stereotypes about certain groups play into situations of workplace violence or sexual harassment? (e.g., “women like to flirt,” “poor or Black men are naturally aggressive,” “it’s ok to harass gay people because their lifestyle is morally wrong.”)
- Do different cultures have different boundaries for touching/body contact? Can anyone give examples of different cultural norms for male-female interactions, touching, or personal space? How might that affect workplace relations?
- What have women’s experiences traditionally been in the building trades? Do you think women construction workers experience violence or sexual harassment more than men do? What about gay people?
- Have you seen or experienced violence or sexual harassment in the workplace? If you feel comfortable, give examples.
- What effect does sexual harassment or violence have on a work environment?
- What can be done to stop sexual harassment or violence in the workplace?

4. Tell students that they will now have an opportunity to confront a challenging workplace situation that either involves violence or sexual harassment. Have the students get into teams of four or five and give each team a different scenario (from the “Violence and Sexual Harassment in the Workplace: Challenge Scenarios” handout) to work through. Tell students to either read the scenarios aloud as a team or silently to themselves, then allow 20 minutes or so to identify the problem situation and brainstorm one or more possible solutions.

When students have had ample time to discuss their challenge scenario and brainstorm solutions, have the teams come back together as the large group. Have a volunteer from each group read their challenge scenario, share their solutions, and share a little about the dialogue that occurred while they brainstormed solutions.
To help students reflect on the activity, ask questions like:

- Can anyone think of other effective ways to handle any of the situations in the challenge scenarios?
- Did you think your challenge scenario was a difficult or easy one? Why?
- In your teams did you have a lot of different ideas for solutions, or was there consensus as how to handle the situation?
- Have you or someone you’ve known ever been in a similar situation? If you feel comfortable, describe. How was that situation handled?

5. Put the following terms (in two columns) on the chalkboard or flipchart paper:

- Negative workplace interaction
- Positive workplace interaction

Ask students to brainstorm a list of negative and positive interactions in the workplace. To get them connected with the task, first ask students to think about the challenge scenarios and solutions they just discussed and identify the negative and positive interactions in each. Then have them think about the interactions (both negative and positive) that they have had at the YouthBuild construction site or have had at other workplaces.

Your list might include:

**COLUMN 1: Negative Workplace Interactions**
- Verbal comments about body parts
- Howling, catcalls, or whistles
- Leers or stares
- Pressure for sexual activity
- Teasing/making fun of a co-worker
- Verbal threats
- Non-verbal intimidation
- Yelling and screaming in anger
- Stepping into someone’s “personal space”

**COLUMN 2: Positive Workplace Interactions**
- Constructive criticism
- Complimenting someone’s work
- Using “I feel” statements appropriately
- Making company rules, regulations, and protections clear and accessible
- Dealing with anger appropriately, using communication and mediation, if necessary
- Being respectful of personal boundaries
- Supporting coworkers who may feel isolated
- Appropriate hugs or pats on the back
- Being cheerful and upbeat with a good sense of humor
- Talking through problems or concerns
Record student responses in the appropriate columns and ask students to record the brainstorm in their journals.

Lead a discussion with the students about negative and positive interactions in the workplace and setting boundaries. To promote dialogue, ask questions like:

- What might some of the consequences or reactions be to the various negative interactions we brainstormed?
- What feelings or outcomes might the positive interactions produce?
- Do you have different boundaries or interactions with different people in your life? (For example, do you act differently with friends than you do with family or co-workers?) Give examples. How do you sort this out in the workplace?
- We often are asked to wear different “hats” or roles in our life. Sometimes we are a friend, an acquaintance, a parent, a boyfriend or girlfriend, a co-worker, a supervisor, etc. What are the characteristics of a good friend? What are the characteristics of a good co-worker? What are the characteristics of a good parent? What are the characteristics of a good supervisor? Are there similarities in each? Differences? Is it comfortable when you are supposed to be the supervisor, but you’re wearing the friend hat? When you are supposed to be a team member is it appropriate to act like you’re in a romantic relationship with a person in that group? What strategies can you think of that can help each of us set appropriate boundaries in the workplace?

Ask students to reflect on the discussion and write a “personal statement” in their journals about safe actions and interactions in the workplace. Explain that their personal statements should be three or four sentences that express their values, beliefs, and attitudes towards creating a safe working environment for everyone. To get students started, ask the group the following questions:

- What is a personal statement? (Define it as a group.)
- How can you be an ally to co-workers who are experiencing violent or harassing behavior in the workplace? (e.g., If I were a victim of workplace violence, what would I want my co-workers to do?)
- What attitudes and behaviors will send a message to my co-workers that I do not support violent or harassing behavior?
- What actions can I take that will contribute to a safe work environment?

Allow 15–20 minutes for students to write their personal statements.
Wrap Up

1. Have each student share their personal statement with the large group. As you commend them for their hard and thoughtful work, ask students to share what they appreciate about others’ statements.

2. Pass out the handouts “What to Do If It Happens to You” and “Sample Informal Resolution Letter” to each student. Go over the handouts with the students and if time permits, have students look up the phone numbers for the resources agencies at the bottom of the “What to Do If It Happens to You” handout. If time does not allow, show the students where to find these phone numbers in the blue pages of your local phone book.

   Lead a discussion about what students should do if they experience sexual harassment at YouthBuild or another workplace. To promote dialogue ask questions like:
   - What is our YouthBuild policy on sexual harassment and violence? How can we make sure everyone is aware of the policy?
   - Do you feel like sexual harassment or violence or abusive behavior is an issue on our construction sites? In the classroom? If so, how can we explore this further to begin the change process?
   - What are some things that each of us might unknowingly do or say that might make others feel uncomfortable? How can we change these behaviors?
   - How can we develop meaningful and appropriate relationships with each other?
   - How can we show respect to fellow team members? Ask students to think about what makes them feel respected.
   - Why are sexual harassment and violence in the workplace everyone's issues?
   - How can our students and/or organization take these two issues more seriously?

3. Have students find creative ways to display their personal statements around the YouthBuild center. Make sure each student puts a copy of their statement in his or her portfolio.
Have students use the Internet or local library to find out more about how sexual harassment or workplace violence impact lives. Students can research incidents that have occurred at other worksites and how workers responded. Have students use these accounts as tools to brainstorm ways to avoid or respond to dangerous situations. Use the “What Would You Do?” handout in the Tools and Resources section to help students develop strategies.

Project-Based Learning Activities

- Have students organize an “awareness fair” to get the word out about harassment and workplace violence. Students can invite local organizations like women’s labor associations, the American Civil Liberties Union, Urban League, Office of Civil Liberties, and other professionals working against violence.

- Students can organize and run a community forum on sexual harassment in the construction industry. They can start off the forum with one or two guest speakers they have invited, and then open it up to the public to discuss their concerns and experiences. Students can videotape the forum and then edit it and add narration to use in orienting new students to the program.
Handout 1

Sexual Harassment Scenarios

Scenario 1: You are a male who has worked for your current construction company for eight months. Stacy has also worked there for eight months, and you and she do the same kind of work. Recently, when Stacy was complaining about trying to make ends meet with her salary and two kids to support, you learned for the first time what her salary is. You realized with surprise that she gets 20 percent less than you make. Is this sexual harassment? What will you do?

Scenario 2: Betsy is in her second week of her new job at Phil’s Construction Co. Last week her co-workers made several jokes about her being the only woman there, and sometimes she heard snickers like they were laughing behind her back at something. This morning when she arrived at work, taped to the front of her locker is a picture of a woman in a bikini wearing a hard hat. Is this sexual harassment? What should Betsy do?

Scenario 3: Two of your co-workers are dating each other. At work the other day you heard them having a fight. One of them yelled at the other about not cleaning up the kitchen and being messy at the worksite. Is this sexual harassment? Should you do anything?

Scenario 4: You are sitting next to some of your male co-workers eating lunch. They’re a generally friendly group and you often hang out with them. You’re sitting there eating and talking, and then one of them starts calling out lewd sexual comments to some of the women walking by. Is this sexual harassment? What will you do?
Sexual Harassment: What to Do if it Happens to You

Follow the sexual harassment policy and procedure that is used by your YouthBuild program. If there is no existing policy and procedure, use this one.

**Step 1:** Communicate to your harasser 1) what you are feeling, and 2) that you expect the behavior to stop. You may do this verbally or in writing. (See the “Sample Informal Resolution Letter” handout.) If you choose, you may get help and support from a friend, parent, professional, or a trusted adult.

**Step 2:** If the behavior is repeated, go to the person in authority, such as a teacher, counselor, or worksite supervisor. Document exactly what happened. Give a copy of your written record to the authority, and keep one for yourself. Your documentation should include the following information. Use exact quotes where appropriate and whenever possible.

- What happened
- When it happened
- Where it happened
- Who did the harassing
- Who the witnesses were (if any)
- What you said and/or did in response to the harassment
- How your harasser responded to you
- How you felt about the harassment

**Step 3:** If the behavior is repeated again, go to the person in higher authority, such as your program director or the company president, etc. Keep documenting the behavior.

At any point in this process, you may choose to contact the Office of Civil Rights, your State Department of Education, your State Department of Human Rights, an attorney, or a police officer.

**Resource Agencies**

1. Office of Civil Rights  
   telephone: ____________
2. Department of Education  
   telephone: ____________
3. Department of Human Rights  
   telephone: ____________
4. Local Program for Victims of Sexual Assault  
   telephone: ____________
5. Police/Sheriff’s Department  
   telephone: ____________
Sample Informal Resolution Letter

September 26, 1999

John Doe:
When I walk to math class on Mondays, I pass your locker. You wink at me and make rude noises and ask me if I want have sex with you.
Your behavior makes me feel angry and humiliated. I feel embarrassed in front of my friends.
Because I have to pass your locker, I feel anxious about walking to math class. It’s hard for me to concentrate on my schoolwork.
I want you to stop this behavior starting now. Don’t wink at me anymore or make those noises or ask me to have sex with you.

Sincerely,
Jane Doe
Health and Safety Organizations

Aim

Students will identify and contact various organizations whose role it is to assist workers with health and safety issues. In this lesson, they will:

- Brainstorm individuals or groups they might contact to get help with health and safety problems
- Work in teams to brainstorm solutions for “Safety Issues Scenarios”
- Research the addresses and phone numbers of organizations whose role it is to assist workers with health and safety issues
- Contact organizations to get information about their purpose and the services they provide
**Things to Consider**

*This lesson requires* that students use several sources to find information on national organizations that assist workers with health and safety issues. Allow time for students to go to the library, do Internet research, and call or visit local government agencies to find the phone numbers and addresses of local and national organizations focused on those issues.

*In this lesson*, students write letters to request information about the purposes and the services provided by health and safety organizations. Think about how you or the students will distribute and/or post the information that students receive in the mail.

**Materials, Tools, and Resources**

- Handout: Workers' Health and Safety Organizations
- Handout: Draft Business Letter
- Handout: Safety Scenarios
- Handout: Health and Safety Organizations Question Sheet
- Envelopes and stamps

**Key Terms**

- Violation/safety violation
- Chain of command
- Occupational Safety and Health Administration
- National Institute for Occupation Safety and Health
- State Occupational Safety and Health Department

**Time**

2 hours
Steps for Activity

1. Tell students that in this lesson they will discuss the following as a group:
   • What is meant by the term “chain of command”?
   • As an employee, how would you find out the correct “chain of command” for reporting a safety issue?
   • As a new employee, how would you determine or learn what things are safety violations?
   • If you have reported a safety violation to your employer and followed the set “chain of command” procedure and the issue has not been addressed, what could you do?
   • What types of organizations might deal with safety violations? List several.

   If students get stuck help generate your list with organizations like:
   - Company Safety Representative
   - Union or Workers’ Organization
   - Local Committee on Occupational Safety and Health
   - State Occupational Safety and Health Department
   - OSHA (Occupational Health and Safety Administration)
   - NIOSH (National Institute for Occupational Safety and Health)

   After students have discussed the above questions and made a list of several types of safety organizations, divide students into small groups and give each group one “Safety Issue Scenario.” Have each team work together to brainstorm a list of organizations that might be able to address the issue presented in their scenario. Have each group report their possible solutions to the group and discuss additional suggestions.

3. Distribute the handout “Workers’ Health and Safety Organizations.” As a group look over the list of possible resources and add any from your brainstorm that are not already listed. Then allow students to work at the local library, on the Internet, or with other resource materials to find phone numbers and address information for the local and national health and safety organizations on the worksheet.

4. Pass out the handout “Health and Safety Organization Question Sheet.” Tell students that they will be calling local organizations and writing state and national organizations to request information about the function of their organization or the services that they provide. Work with students to brainstorm a list of questions that would help them to gather important information in an organized way. Here are some sample questions to get them started:
   • What does your organization do?
   • What is the mission of your organization?
• What type of safety issues can you help with?
• What happens after a safety issue is reported?
• How can we find out more about your organization?

Have each student record the questions. Divide the organizations among the students and instruct each student/group to contact their organization (by phone or letter) and gather answers to the brainstormed questions. For those who will need to write to their organization, distribute the handout “Draft Business Letter.” Have students practice their letters on this form, then revise and rewrite a final draft to mail. When students have completed their research, let them complete the “Health and Safety Organizations Questions Sheet” to keep in their portfolio. Ask them to explain why they should keep this information in their portfolio.
Creative Extensions

- Transfer information gathered on health and safety organizations onto 3x5” note cards to create an index file, or compile the information into an easy-to-use resource guide. Additionally, students could enter it into a YouthBuild database and update as needed.

- Have students use newspapers, magazines, and video footage of construction disasters caused by faulty construction or safety violations to explore the importance of following the guidelines set by health and safety organizations.

Project-Based Learning Activities

- Invite a speaker from the safety department of a local construction company, union safety representatives, OSHA safety representative, local Occupational Safety and Health Committees, the White Lung Association, City Building Inspectors, etc. Students should prepare questions in advance. Then, based on what they learned, students can write a book of short stories about safety. *Why We’d Do it Differently Next Time* could be a possible title.

- Students can help future YouthBuild students learn about the role of organizations such as OSHA by researching and compiling a report on the history of workplace health and safety organizations.
Safety Scenarios

Safety Scenario # 1: You have started working as a roofer for a contractor. He has promised to provide you with the necessary safety gear but has not followed through. He insists that you proceed with your work. You have brought the issue up with your boss several times but no action has been taken. What do you do?

Safety Scenario # 2: While working late last spring, you witnessed co-workers illegally dumping hazardous materials in a stream behind the construction site. You wrote up a safety incident report and reported the incident to your supervisor. To your knowledge, nothing has been done about the situation or the workers’ conduct. Yesterday you saw the same workers dumping more material illegally. Who do you contact?

Safety Scenario # 3: You go out to lunch with a co-worker, and he brings up a stressful situation at work. Your co-worker is very upset that your boss treats him very disrespectfully. He drinks three or four beers “just to take the edge off.” When you all return to work he continues his work operating heavy machinery. What do you do?

Safety Scenario # 4: You are the only female worker on the construction site. Your supervisor has asked you out on a date several times and you have declined. You have been very clear with him that you are not interested in anything but a professional relationship, but he has continued to harass you. Finally you report the issue to his boss. The next day when you return to work, your co-workers make several jokes and say that you are just causing problems. That afternoon your supervisor says that there is not enough work for all employees, and that you are being laid off. What do you do?

Safety Scenario # 5: You run out of materials while framing an addition to a home. You tell your boss that you need more supplies but he instructs you to “stretch” what you have. You inform him that you will not be able to meet building requirement codes without additional material, but he insists that he does it all the time and it will be fine. What do you do?
**Handout 2**

**Workers’ Health and Safety Organizations**

Company Foreman, Supervisor, or Safety Representative:

NAME: ____________________________
PHONE: ____________________________
ADDRESS: ____________________________

Union or Workers’ Organization

NAME: ____________________________
PHONE: ____________________________
ADDRESS: ____________________________

Local Committee on Occupational Safety and Health

NAME: ____________________________
PHONE: ____________________________
ADDRESS: ____________________________

State Occupational Safety and Health Department

NAME: ____________________________
PHONE: ____________________________
ADDRESS: ____________________________

OSHA (Occupational Health and Safety Administration)

NAME: ____________________________
PHONE: ____________________________
ADDRESS: ____________________________

NIOSH (National Institute for Occupational Safety and Health)

NAME: ____________________________
PHONE: ____________________________
ADDRESS: ____________________________
### Lead Abatement

| NAME: | | |
| PHONE: | | |
| ADDRESS: | | |

### Asbestos

| NAME: | | |
| PHONE: | | |
| ADDRESS: | | |

### Additional Resource

| NAME: | | |
| PHONE: | | |
| ADDRESS: | | |

### Additional Resource

| NAME: | | |
| PHONE: | | |
| ADDRESS: | | |
Handout 3

Health and Safety Organization Question Sheet

Name of Organization: ______________________________________________________________________

Phone Number: __________________________________________________________________________

Address: ________________________________________________________________________________

Question 1 ______________________________________________________________________________

Response ________________________________________________________________________________

Question 2 ______________________________________________________________________________

Response ________________________________________________________________________________

Question 3 ______________________________________________________________________________

Response ________________________________________________________________________________

Question 4 ______________________________________________________________________________

Response ________________________________________________________________________________

Question 5 ______________________________________________________________________________

Response ________________________________________________________________________________

Additional Notes: __________________________________________________________________________
Handout 4

Draft Business Letter

Use this form as a practice sheet. Rewrite the text on a separate sheet before mailing.

Your address:

________________________________________

________________________________________

________________________________________

Date:

Business address:

________________________________________

________________________________________

Dear ____________________________,

Introduction:________________________________________

________________________________________

________________________________________

Reason for writing:________________________________________

________________________________________

________________________________________

Conclusion:________________________________________

________________________________________

Sincerely,

[your signature]
Both the teacher and the students will assess student knowledge of workplace safety. In this lesson, students will:

- Collect materials they have produced throughout the unit into individual portfolios (See Portfolio Assessment Checklist)
- Complete a Worksite Safety Self-Assessment to demonstrate their knowledge of worksite safety information
- Write a reflective self-assessment in their journals, based on collected work
- Demonstrate appropriate safety behavior and attitudes during observations by instructors
Things to Consider

Prepare students for the self-assessment by asking them to first review all of the materials in their portfolio: tell them to use these materials to help them review what they have learned. Students should also identify those areas in which they need to improve.

Your observation of students can either be done over a period of time (e.g., throughout this unit) or during an arranged time (e.g., when a student is working on the site). It is suggested that instructors review the results of their observations individually with students, and provide constructive feedback as part of the assessment.

Materials, Tools, and Resources

- Handout: Portfolio Assessment Checklist
- Handout: Safety Self-Assessment
- Handout: Instructor Observation Assessment

Key Terms

- Self-assessment
- Reflective
LESSON THIRTEEN  Workplace Safety Assessment

**Steps for Activity**

1. Tell students that in this lesson they will wrap up the Health and Safety unit by reflecting on their experiences and by completing a final assessment of their knowledge and skills. Distribute the “Portfolio Assessment Checklist” handout and remind students that they have been collecting material for their portfolios throughout the unit. Provide time for them to gather their work and put it into a folder or binder and then organize and label their work. When students have completed this process have them check their portfolios for completeness by reviewing the “Portfolio Assessment Checklist.”

2. Tell students to examine the materials they have collected and reflect on what they have accomplished. Let students know that they will be writing a reflective journal entry and completing a self-assessment to determine their understanding of health and safety issues in construction.

3. After students have had sufficient time to reflect on their portfolios, write the following questions on the board or overhead:
   - What do you know about safety now that you did not know before?
   - How have your attitudes and behaviors changed as a result of this unit?

   Ask students to take 5–10 minutes to respond to the questions in their journals.

4. When students are done with their journal entries, ask them to put their portfolios away. Distribute the handout “Safety Self-Assessment.” Ask students to complete it as fully and as accurately as possible.

5. After students have completed the assessment, work as a group to go over the questions and fill in the appropriate answers. Encourage students to share their original responses and to write in additional or correct answers.

6. Set up a time to meet with individual students to discuss their self-assessment and your observations.
Wrap Up

Lead a discussion with students about their growth and about areas in which they might need to improve. To encourage meaningful reflection ask questions like:

• How do you feel about your self-assessment?
• Did anything surprise you?
• What knowledge areas do you need to review?
• What skills do you need to improve?
• What are your safety strengths? How can you help others improve in these areas?
• What else would you like to learn about health and safety issues on the worksite?
• How will you continue to explore these issues on our worksites?
Handout 1

Portfolio Assessment Checklist

Upon completion of the unit, students should have the following items in their portfolios:

- Journal entries on attitudes and behaviors that cause accidents and those that promote safety (Lesson 1)
- Journal entry on health and wellness plan of action (Lesson 2)
- “Avoiding Safety Problems on the Site” (Lesson 2)
- Safety poster (Lesson 3)
- Warning sign (Lesson 4)
- Journal entry on personal reflection when a warning was heeded or ignored (Lesson 4)
- “Safety Gear #2, Memory” (Lesson 5)
- “Tool Safety Review List” (Lesson 5)
- Safety poem (Lesson 5)
- Power tool safety presentation (Lesson 6)
- Journal entry on the importance of back health and the consequences of a back injury (Lesson 7)
- List of Potential Safety Hazards (Lesson 8)
- Safety Hazard Checklist (Lesson 8)
- Responding to an Emergency (Lesson 9)
- Using the First Aid Kit (Lesson 9)
- The Emergency Phone Call (Lesson 10)
- Journal entry identifying the traits of a good communicator (Lesson 10)
- Negative and positive interactions in the workplace (Lesson 11)
- Ways to prevent or handle violent or sexually inappropriate workplace situations (Lesson 11)
- “Workers’ Health and Safety Organizations” (Lesson 12)
- Business letter to health and safety organizations (Lesson 12)
- Workplace Safety Self-Assessment (Lesson 13)
Handout 2

Safety Self-Assessment

1. Where are emergency phone numbers listed at your worksite?

2. What do you say when you make an emergency phone call?

3. Where is the first aid kit kept?

4. Describe proper lifting techniques.

5. When should you wear a HARD HAT on the job?

6. When should you wear STEEL-TOED BOOTS on the job?

7. When should you wear GOGGLES on the job?

8. When should you wear a DUST MASK on the job?

9. Give three examples of safe procedures for using power tools:

10. What do you do to make sure that you are able to concentrate on the job?

11. What can you do to avoid taking risks with your own and your co-workers’ safety?

12. Why is it important to get enough sleep?

13. What are possible negative outcomes from using alcohol or drugs before or during work?
14. Do you follow all the rules and procedures for your job?
  ☐ always  ☐ sometimes  ☐ rarely  ☐ never

15. Do you use proper lifting techniques?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

16. Do you wear a HARD HAT when the job calls for it?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

17. Do you wear STEEL-TOED BOOTS when the job calls for it?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

18. Do you wear GOGGLES when the job calls for it?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

19. Do you wear a DUST MASK when the job calls for it?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

20. Do you follow safe procedures for using power tools?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

21. Do you report unsafe conditions to your supervisor?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

22. Do you act in a responsible, safe manner on the worksite?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

23. Do you accept constructive criticism about your safety practices on a job?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

24. Do you ask for help when you need it?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never

25. Overall, do you do a good job of keeping the worksite a safe place?
   ☐ always  ☐ sometimes  ☐ rarely  ☐ never
26. What areas do you need to improve? Make a list of steps you can take to improve:

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
Instructor Observation Assessment

Instructors observe students in a work situation in order to evaluate their ability to apply safety procedures and skills.

Student Name: __________________________________________________________

Date: ____________________________________________________________________

1. Follows all the rules and procedures on the job
   □ always □ sometimes □ rarely □ needs improvement

2. Knows where the emergency phone numbers are on the worksite
   □ yes □ no

3. Knows what to say when making an emergency phone call
   □ yes □ no

4. Knows where the first aid kit is kept
   □ yes □ no

5. Uses proper lifting techniques
   □ always □ sometimes □ rarely □ needs improvement

6. Wears a HARD HAT when a job calls for it
   □ always □ sometimes □ rarely □ needs improvement

7. Wears STEEL-TOED BOOTS when a job calls for it
   □ always □ sometimes □ rarely □ needs improvement

8. Wears GOGGLES when a job calls for it
   □ always □ sometimes □ rarely □ needs improvement

9. Wears a DUST MASK when a job calls for it
   □ always □ sometimes □ rarely □ needs improvement

10. Wears GLOVES when a job calls for it
    □ always □ sometimes □ rarely □ needs improvement

11. Follows safe procedures for using power tools
    □ always □ sometimes □ rarely □ needs improvement

12. Reports unsafe conditions to supervisor
    □ always □ sometimes □ rarely □ needs improvement
13. Concentrates on the job at hand  
   - always  - sometimes  - rarely  - needs improvement

14. Avoids taking risks  
   - always  - sometimes  - rarely  - needs improvement

15. Accepts constructive criticism about safety practices on a job  
   - always  - sometimes  - rarely  - needs improvement

16. Thinks before he or she acts  
   - always  - sometimes  - rarely  - needs improvement

17. Asks for help when he or she needs it  
   - always  - sometimes  - rarely  - needs improvement

18. Avoids alcohol and drugs before and during work  
   - always  - sometimes  - rarely  - needs improvement

19. Acts in a responsible, safe manner on the worksite  
   - always  - sometimes  - rarely  - needs improvement

20. Suggestions for improvement:

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

Instructor's Signature __________________________________________

Student's Signature ___________________________________________
Tools and Resources

Selected Readings

Books


This powerful documentary is the intensely human story of the 1978 postal workers strike in which thousands of rank and file workers walked off their jobs, demonstrating against unsafe working conditions. Now in use by labor groups across the country, it is a story about women and men who are organizing and struggling for safe and humane conditions in the workplace.

You Can Give First Aid, Kim Bowman, New Reader’s Press, Box 131, Syracuse, New York 13210.

This workbook on basic first aid covers the following topics in a readable, clear format accessible to basic and intermediate readers: The First Steps; The Emergency Phone Call; Mouth-to-Mouth Breathing; Choking; Bleeding; Poisoning; Shock; Burns; Broken Bones; Exposure; Minor Wounds and Bites; Eye, Ear and Nose; Moving the Injured; First Aid Box. This workbook would serve as an excellent supplement to the Health and Safety unit, as well as an introduction to first aid, to precede a course in first aid certification.

Standard First Aid, American Red Cross, Mosby Lifeline, Mosby-Year Book, Inc., 11830 Westline Industrial Drive, St. Louis, MO 63146.

This text is a complete overview of Red Cross First Aid procedures. Readable and colorfully illustrated, it is designed to be used as the text of the Red Cross First Aid Course.

Pamphlets

You and Safety
How Do You Rate as an Accident Risk?
You and Your Back
The ABCs of Moving and Lifting Things Safely

About Ladder and Scaffold Safety

On-the-Job Safety

About Electrical Safety

What You Should Know About Workplace Emergencies


This series of illustrated pamphlets is an excellent way to introduce students to safety concepts in a readable, accessible format. Short, eight-page pamphlets provide clear introductions to safety issues, appropriate for multi-level groups.

Websites

Please note: the following websites were available as of January 2001, but may no longer be operational.


The organization can also be contacted at Construction Safety Council, 4415 W. Harrison St., Ste. 403, Hillside, IL 60162, Phone: 800-552-7744, Fax: 708-449-0369.

OSHA (Occupational Safety and Health Administration): http://www.osha.gov


The Center to Protect Workers’ Rights: http://www.cpwr.com/hpintro.html


Operation Safe Site, web page with information and links to other sites on all aspects of construction safety: http://www.opsafesite.com/

Operation Safe Site, Construction Safety Discussion Forum: http://www.opsafesite.com/disc1_srch.htm

Construction Safety and Safety Planning, list of links: http://www.civil.port.ac.uk/safety/consafe/consafe.html1
General Supplemental Material

Handout 1

Completing a Sample Accident Report

- Emphasize to students the importance of good communication when writing reports. Remind them that being careful is key, because the consequences of writing careless or inaccurate reports could be serious. Jobs or compensation could be lost as a result of incomplete or incorrect reporting of accidents or injuries.

- Distribute the handout: “Possible Construction Accidents.” Ask a volunteer to read the first scenario aloud, then ask if there are any questions.

- When they have finished, ask them to exchange their forms with another student who will check for completeness and accuracy.

- After they have revised the forms based on the other student’s feedback, discuss some of their answers and any questions that arose in students’ efforts to complete the forms.
Possible Construction Accidents

To complete the Sample Accident Report forms you may use two of the three following examples:

Example One
John Thomas, a 60-year-old physically healthy man, has been working at Morgan Tractor Company for five years and has an excellent reputation as a mechanic. On Monday, February 13, he went to work at 7 a.m., as usual, and started to work repairing a tractor engine. At 10:15 a.m., he took a 15-minute coffee break. When he returned, he walked toward his station, but was called by his co-worker, Mario DeLeo. He turned suddenly and slipped on some oil on the floor. He fell hard and suddenly and yelled out in pain. He was rushed to the hospital, where he was treated for a broken hipbone. He had to stay in the hospital for three weeks and then stay home for a month. His doctor told him that he could return to work, but needs to sit instead of stand.

His supervisor, Sam Smith, is presently reviewing the accident. John’s Social Security number is #077-42-1188.

Example Two
Debra Jones works as an assistant carpenter for a small contracting company. She has worked for them for three years and has a fairly good record; she was once suspended for a week for lateness, but otherwise does the job she is asked to do carefully and correctly. She is usually attentive to basic safety rules, but sometimes takes her gloves, mask, or goggles off when she is working in extreme heat. Many of her co-workers are also careless about safety rules and the foreman does not reprimand them.

Debra started work at 7 a.m. on Thursday, July 19. She was responsible for cutting studs with a table saw, alongside her co-worker, Brian Maloney. She worked for about two hours with her safety goggles on, but began to get hot and removed them because they were becoming sweaty and foggy. After an hour of working without them, a splinter of wood flew into her eye. She screamed in pain and was taken to the hospital for immediate eye surgery. She was hospitalized for three days and has to wear an eye patch for four weeks and will probably have only partial vision in that eye after it has healed. Her supervisor, Lidia Santos, who was out getting coffee when the accident happened, is presently reviewing the accident. Debra’s Social Security number is #886-33-1194.
Example Three
Jaime Rivera has worked as a laborer for a small family business for 16 months. He is inexperienced but eager to learn and follows directions well. He has a good work record and is up for evaluation. His supervisor plans to suggest that he apply to the local carpenter’s apprenticeship program when he returns from his medical leave, the length of which depends on his recovery.

At 10 a.m. on Wednesday, November 5th, Jaime stepped on a loose board on the third floor of the old abandoned building the company is renovating. He was wearing steel-toed boots and a hard hat and there were no signs anywhere. This was his first time on the third floor. After stepping on the loose board, he fell two floors and broke both legs. Joe Monticello and Maria Ruis witnessed the accident and rushed to his side. His supervisor, Linda Moore, was busy reading plans when the accident happened. She is presently reviewing the accident. Jaime’s Social Security number is #334-67-9907.
Handout 3

Sample Accident Report Form

Name ____________________________________________

Date ____________________________________________

Social Security # __________________________________

Time employed at current job _________________________

Date and time of accident ____________________________

Description of accident ______________________________

Witnesses __________________________________________

Were you using proper safety equipment? ________________

What safety equipment were you using? ________________

____________________________________________________________________________________

How much lost time at work resulted from this accident? ________________

Who directed you to do the work you were doing when the accident occurred?
____________________________________________________________________________________

Who is your immediate supervisor? ______________________

What would you have done differently to avoid this accident?
____________________________________________________________________________________
Why do you believe this accident happened to you and not to others working on the same job?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Do you believe you can do “light” work if you are allowed to? __________

________________________________________________________________________

Can you return to your job immediately? ________________________________

________________________________________________________________________
Chemical Hazard Codes

1. **IRRITANTS** are chemicals that cause an irritation to the skin or lung lining. The effect is not always immediate and when expressed, may last for some time. Avoid getting these chemicals on the skin or breathing in any dust or vapor. Wash your hands often when working with these chemicals to minimize the length of exposure to incident contact.

2. **CORROSIVES** are either concentrated acids or bases. These substances can cause severe burns to the skin comparable to burns caused by heat. Flush exposed area with copious amounts of water immediately on contact with any part of the body.

3. **TOXIC SUBSTANCES** are chemicals that cause harm to the body in a variety of ways. Chemicals can be absorbed through the lungs and skin, be distributed throughout the body, and disrupt bodily functions far from the site of exposure. Effects can be dizziness, headaches, respiratory difficulty, kidney failure and liver involvement, as well as cellular breakdown. Using proper safety equipment when handling these chemicals is absolutely necessary.

4. **FLAMMABLE** substances give off a vapor that is capable of forming a mixture with air (oxygen) that can be ignited by a flame or spark. The flammability rating of a substance is given by its flash point. The flash point is the lowest temperature at which the vapors given off will form a mixture with air that will ignite. The lower the flash point the more likely the vapor can be ignited by a heat source. The vapors given off by these chemicals are often toxic. Restrict ignition sources in a room if you are using flammable chemicals. Do not use open flames, use heating mantles or thermowells when heat is necessary. Keep all containers of flammable chemicals tightly closed.

5. **REACTIVE SUBSTANCES** cause an explosive reaction when exposed to water and/or air. Sodium, potassium, and lithium are examples of chemicals that react violently with water. Phosphoric chemicals react with air so rapidly that ignition occurs, producing a very dangerous situation.

6. **OXIDIZERS** are chemicals that react with other chemicals (fuel, combustible materials). Oxidizing agents should be stored separately from any other chemicals. Any work done with oxidizing materials should be monitored closely.
### Handout 5

#### Chemical Compatibility Chart

<table>
<thead>
<tr>
<th>Chemical:</th>
<th>Non-compatible with:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>Nitric or sulfuric acid mixes</td>
</tr>
<tr>
<td>Ammonia</td>
<td>Mercury, chlorine, iodine</td>
</tr>
<tr>
<td>Ammonium nitrate</td>
<td>Acids, powdered metals, flammable liquids, nitrites, sulfur</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>Water</td>
</tr>
<tr>
<td>Carbon</td>
<td>All oxidizing agents</td>
</tr>
<tr>
<td>Carbon tetrachloride</td>
<td>Sodium</td>
</tr>
<tr>
<td>Chlorine</td>
<td>Ammonia, butane, methane, propane (or any other petroleum gases), hydrogen, turpentine</td>
</tr>
<tr>
<td>Chromic acid</td>
<td>Glycerol, alcohol, any flammable liquid</td>
</tr>
<tr>
<td>Cyanide</td>
<td>Acids</td>
</tr>
<tr>
<td>Flammable liquids</td>
<td>Hydrogen peroxides, nitric acid</td>
</tr>
<tr>
<td>Hydrogen Peroxide</td>
<td>Copper, iron, most metals and their salts, alcohol, acetone, organic materials</td>
</tr>
<tr>
<td>Iodine</td>
<td>Ammonia, hydrogen</td>
</tr>
<tr>
<td>Oxygen</td>
<td>Oils, grease, hydrogen, any flammable liquid or solid</td>
</tr>
<tr>
<td>Peroxides, organic</td>
<td>Acids (mineral or organic)</td>
</tr>
<tr>
<td></td>
<td>AVOID FRICTION, STORE COLD</td>
</tr>
<tr>
<td>Potassium</td>
<td>Carbon tetrachloride, carbon dioxide, water</td>
</tr>
<tr>
<td>Silver</td>
<td>Acetylene, tartaric acid, ammonium compounds</td>
</tr>
<tr>
<td>Sodium</td>
<td>Carbon tetrachloride, carbon dioxide, water</td>
</tr>
<tr>
<td>Sodium peroxide</td>
<td>Ethyl or methyl alcohol, benzaldehyde, glycerin</td>
</tr>
</tbody>
</table>
Handout 5, cont’d.

In general, do not mix:

1. Bleach and ammonia
2. Bleach and peroxide
3. Heavy metals and any organic waste
4. Acids and bases — always check pH before commingling
5. Concentrated acids
6. Di- and tri-nitro compounds
7. Anything containing PCBs
Handout 6

What Would You Do?

If you were in a situation like this, how would you approach this issue?

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
Communication Drawing

Tell students to refer back to the key points of good communication that they recorded in their journal as they complete the next activity. Divide students into groups of three or four and explain that they will be playing a communication game. Ask them to listen carefully as you read the directions.

Directions:

- Each team will select a team leader. This person will receive a piece of paper with a complex design on it. ONLY THE TEAM LEADER MAY SEE THIS DESIGN! The team leader will attempt to communicate what he/she sees on the paper to the other team members. The team leader can communicate via talking or hand gestures. The other members of the team cannot talk or ask questions.

- The other team members will work together to recreate this complex design on a blank sheet of paper, following the instructions of the team leader.

- Teams will have up to 15 minutes to recreate the design. The first team to accurately or most accurately recreate the design wins.

Pass out blank paper and pencils and allow time for each team to select its team leader. Give each team leader a copy of the handout “Communication Drawing” that has been folded in half. You might take a few minutes to help the students recall the key elements of a good communicator that they discussed earlier. When all teams are focused and ready to begin the activity, tell the team leaders to open the handout and begin.

Allow teams up to 15 minutes to recreate the drawing. After the 15 minutes are up, allow teams to share their drawings with one another and have students select the one that is most accurate. You may choose to reward the winning team with a small prize.

When students have completed the activity, help them reflect on the process by asking each group to identify two or three strengths and weaknesses of their team’s communication. Have each group brainstorm one or two ways they could improve their communication skills.
Handout 7, cont’d.