The notes on this Workbook Page include both general comments and instructor notes:

**GENERAL COMMENTS:**

**Instructor:** Before conducting this Workshop, review the Instructor Notes related to each page. The Instructor Notes can be viewed by selecting <View> on the PowerPoint Ribbon and selecting <Normal> or <Notes Page>.

**Overhead Slides:** This is a Workshop and means the Attendees, the Workbook and the Instructor are the primary learning tools. Please use the companion Overhead Slides effectively. It is recommended that the companion Overhead Slides be used to assist the attendees focus on new information or a new section of the Workshop and to assist visual learners. Advancing Overhead Slides is very effective to assist low-literacy Attendees stay on track with the Workbook. Although the Instructor Notes for this Workshop indicate which slide to use by the Title of the Overhead Slide, most of the Overhead Slides have a graphic, table, or image that matches something on the Workbook making it effortless to determine which Overhead Slide to use.

Effective use of Overhead Slides includes turning them “on” and “off.” Doing so makes the next Overhead Slide more significant. After advancing to a new Overhead Slide, wait a few moments to allow the attendees to turn to the corresponding page of the Workbook. Then, Black-out the overhead projector with the “B” on the keyboard to turn the attention and focus from the projector wall to the workbook and the
discussion. Toggle the “B” on the keyboard again to Light-up the overhead projector again and advance to the next Overhead Slide. (The “B” key works only when PowerPoint is in Slide-Show mode.) Exceptions to the “on/off”: Some Overhead Slides should remain “On” during the Workshop to add emphasis to the discussion and as a visual reference to the topic. For example, the Pictograms discussion should be done with that Overhead Slide “On.”

Overhead Slides, the stars: Because of different teaching styles, instructors who don’t like using too many Overhead Slides, may elect to use only those that have an image of a star which indicate that the these Overhead Slides are highly recommended be used. Stared Overhead Slides are also referenced in these Instructor Notes.

Overheads with links: Some overheads have links. These slides say “Active Link.” However, they only work only when PowerPoint is in Slide-Show mode.

Handouts: Important and useful handouts related to this Workshop have been added in the Appendices. To conserve resources, please review the appendices before duplicating additional materials. The Appendices are located in a separate file. The file is large because the appendices are high-quality intended for duplication. The handouts include Federal OSHA’s Quick Cards on GHS. Please repeat this information as you proceed through the sections covering Pictograms, Labels, and SDSs.

INSTRUCTOR COMMENTS FOR THIS WORKBOOK PAGE:

Overhead Slide “Star”: with the “HazCom’s Four Parts”

Instructions for this Workbook Page: Cover the goals. Use the Overhead Slide with the “HazCom’s Four Parts” to explain that HazCom is divided into four parts: Labels, Safety Data Sheets, Written Program, and Training. Mention that the four parts work together forming a “circle of communication about hazardous chemicals.”

Mention that this Workshop also covers the 2012 Globally Harmonized System requirements adopted by Federal OSHA in CFR 1910.1200. Add that the GHS elements have been “Aligned” with HazCom. In other words, there are not two parts to this Workshop. Rather, they are “Integrated.”

Licensed Pesticide Applicators: This Workshop provides 3 recertification credits for Oregon Licensed Pesticide Applicators. Reggie Robb, regina.k.robb@state.or.us 503-947-7443 obtains the required from the Oregon Agriculture Department and provides the form to you before the Workshop date if you are an Oregon OSHA employee and this Workshop is scheduled by Oregon OSHA. However, if you are and Oregon OSHA employee and are conducting this Workshop as an “on-site” training request or you are not an Oregon OSHA employee, it is the responsibility of the requestor or you, the instructor to obtain the registration form from the Oregon Department of Agriculture. Questions from applicators about their licenses and credits and forms should be referred to the Pesticides Division at the
Oregon Department of Agriculture: 503-986-4642.

**Questions:** Oregon OSHA uses a team approach in developing Public Education Workshops. The team leader for this Workshop was Tomás Schwabe. He can be reached by E-mail tomas.schwabe@state.or.us and Phone: 503-947-7436.

Questions about this and other Oregon OSHA materials can be answered by calling Oregon OSHA’s main phone number: Toll free number in English: 1-800-922-2689 Toll free number in Spanish: 1-800-843-8086 Web site: [www.orosha.org](http://www.orosha.org).
Overhead Slide “Stars” 2 “What is a chemical” and the “What would you do?”

Definitions
There are two new key definitions in the new 2012 HazCom rule: The definition of a chemical and the definition of a hazardous chemical.

Compare the old 1994 chemical definition: "any element, chemical compound or mixture of elements and/or compounds.”  Why the difference?  Simplification.

Compare the old 1994 hazardous chemical definition: "any chemical which is a physical hazard or a health hazard.” The new definition of a hazardous chemical aligns with the 2012 HazCom rule which includes specific criteria for classification of health and physical hazards, as well as classification of mixtures. These specific criteria will help to ensure that evaluations of hazardous effects are consistent across manufacturers, and that labels and safety data sheets are more accurate as a result.

Practice
After discussing the 2012 definitions and terms above, please reinforce them. Ask students to think of a hazardous chemical which they use.

Because this is the first exercise of the Workshop, go slowly! Encourage students to be honest about their response by telling them that this is not a “share” exercise. (Students tend to be more honest if they’re not going to feel embarrassed if they’re wrong or don’t
know something.) There will be plenty of “share” exercises later. (FYI: The number of people getting all three answers 100 percent correct is usually low.)

When the **Practice** exercise is finished, please mention that Oregon OSHA Compliance Officers probably will ask these **same** questions when they conduct employee interviews during the course of an inspection. Mention that workers who are effectively trained, are more likely to read **SDSs**, **Labels**, use their **PPE**, and take appropriate action in an **Emergency**.
Overhead Slide: None for the top of the page. Black-out the overhead projector with the “B” on the keyboard and focus attention on discussion the key concept of this Workbook Page: Effective Communication.

Please focus the class on the employer being responsible to effectively communicate the hazards by means of Labels, SDSs, the Written Program, and Training.

Example: Employers have been issued citations not because they didn’t provide information but because the training wasn’t effective… as evidenced by the employee interviews showing that worker didn’t know the location of the SDSs or the health effects of the chemicals they use, or what to do in the event of an emergency.

Effective Communication (Training) shall also include information about what to do in the event of an emergency.

Bottom of the page:
Overhead slide: "Emergency Exposures"

In this Workbook Page, "emergency" is defined as foreseeable failures such as power outages, equipment failures, rupture of containers, or failure of control equipment and is not meant to encompass fires, or other catastrophic events such as earthquakes.
This **Workbook Page** has the flexibility for you to use your own example(s) of a situation where workers were exposed in a foreseeable emergency.

Or you can this example involving a leak of chlorine gas: A one-ton tank of chlorine gas used to treat irrigation water in an agricultural facility released chlorine gas in the area where workers were performing hand-labor operations. The workers didn’t know that the tank held chlorine for purifying irrigation water. The workers detected the smell and effects of chlorine gas but because they had not been effectively trained, they did evacuate the area immediately. Several workers suffered: eye, nose, and throat irritation. Luckily, none suffered permanent injury or illness. They were lucky.

**Light the overhead projector with the “B” on the keyboard and advance to the Overhead Slide:** “Danger Chlorine Gas” Or, replace this overhead slide with one of your own that illustrates a foreseeable emergency from your own knowledge or experience.

Please reinforce the differences between normal versus foreseeable exposures. Do a brief Q&A:

- **Foreseeable?**
  Q: Is a leaking tank foreseeable?
  A: Yes? This is the answer you’re looking for. Move on.
  Q: Should the employer train workers on what do in the event of an emergency release of chlorine gas?
  A: Yes? This is the answer you’re looking for. Move on. Or,
  A: No? If you get some “nos” Conduct a brief discussion. Bring the classroom into the discussion. But be brief, there’s still much more to cover in the **Workshop**.
Overhead: “States of Matter”

Chemicals come in 3 states: **SOLIDS, LIQUIDS, and GASES**.

**Please** emphasize that Hazard Communication covers the **3 states** of matter (some references include Plasma and Bose-Einstein Condensate as the other two states of matter but for now, the basic 3 are enough.) Some employers may not use chemicals in all 3 states. For instance they may not use gases very often.

Engage the class. Please share things you know about chemicals. Example: Lead can be present in both work and home: Lead can be found in old paint, children’s jewelry and toys, mini-blinds, some imported food cans (the cans are sealed with lead-based solder), hobbies such as pottery, stained glass, and fishing tackle.

**Please** consider making your explanation about some of the these chemicals as practical as possible. Emphasize the location or process where some of these chemicals are used. For example, cancer-causing benzene exposures occur while using benzene-based solvents. Respiratory disease caused by fiberglass dust can occur when making bathtubs and boats. Death-inducing gases such as methane and hydrogen sulfide in manure pits in dairies.
Overhead: “The dose makes the poison”

Please cover the importance of chemicals to industry, construction, manufacturing, etc. that provide the many conveniences of modern life. But also cover that those same chemicals can harm us if we are not adequately protected.

“The dose makes the poison”, a principle of toxicology first expressed by Paracelsus, a Swiss-German born in 1493. He was a physician and botanist and also coined the term “gas” and “chemistry”. “The dose makes the poison”, means that a substance can produce the harmful effect associated with its toxic properties only if it reaches a susceptible biological system within the body in a high enough concentration (dose).

And what helps protect us from these “doses”? Correct . . .Labels, SDS, Written Hazard Communication Program, and Training.

Trivia:
Which were the first rules adopted after Congress passed the OSHAct in 1970?
First safety rule adopted: Excavation.
First health rule adopted: Hazard Communication.

The Point of this Page: We have at our disposal the tools to control or eliminate most of the causes of occupational illness. We have laws (OSHA), we have science CDC/NIOSH, we have modern industrial practices, and we have better communication systems than at
any time in history. All we have to do is put these tools to work effectively.
Overhead Slide “Star”: “Routes of Entry”

Discuss exposure through the routes of entry.

Reinforce the health and physical effects of **Substances or Mixture of Substances**. Ask the class if they know that some chemicals target certain organs.

**Example:** A solvent with a chemical called benzene: After benzene enters the body through skin or nose, the benzene targets the bone marrow: After benzene gets to the bone marrow, it causes a cancer know as leukemia.

Engage the class. Reinforce the PRACTICAL side of the rule. Ask if anyone knows the target organs of other chemicals such as a) lead, b) silica, or c) carbon monoxide. The answers are respectively: a) nervous system, lungs, red-blood cells.

Hazard Communication Circle:

Emphasize again how the four parts work together forming a “**circle of communication about hazardous chemicals**” to help the employer protect workers from hazardous chemicals. Read out the four elements: Labels, SDS, Written Program, and Training.
Overhead Slide “Star”: How HazCom Works (HazCom’s Four Parts Circles)

When you turn to this Workbook Page, emphasize how each of the Four Main Parts of HazCom plays a part in helping workers stay safe and healthy.

The Written Hazard Communication Program is the “master plan” that the employer sets up that says who is in charge of making sure primary and secondary labels are on the containers and pipes, SDSs are available and up-to-date, who does the training, who coordinates with contractors, and who determines the hazards of non-routine tasks.

Labels: Realistically, labeling is not difficult but is time-consuming to ensure it’s done right. Tasks include secondary containers, stationary containers, and replacing illegible or missing labels. Requires good accountability to keep from getting cited by Oregon OSHA Compliance Officers. Year after year, Labeling (or lack thereof) is always listed in the “top 25” of violations cited.

Safety Data Sheets: They contain the information necessary to assist the employer in training the worker so they don’t get harmed by the chemical. They contain key information that all workers should know such as the health and physical effects, the PPE to use, and what to do in the event of an emergency.

Training: “Where the rubber meets the road.” Encourage employers to make the training “real” by showing the worker how to use the chemical safely and then having the worker demonstrate. Verify that the training was effective by asking the workers questions. Have
them demonstrate that they know how to put on PPE correctly, how to wash off, what to do in an emergency, etc.
Overhead Slide “Star”: “Are all chemicals covered?” – Paint bucket

The correct answer is “no.”

This list of exemptions doesn’t mean that the chemicals covered are not dangerous, it means that many chemicals on this list are either covered by another government agency or are chemicals/products that don’t present a health/safety risk.

Example: The exempted class “article” is a manufactured item other than a fluid or particle which is formed to a specific shape or design during manufacture and under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical and does not pose a physical hazard or health risk to employees.

Hold up and display to the Attendees something like an eraser, a pair of eyeglasses, a computer mouse as examples of “articles.”
Overhead Slides – 2 for this Workbook Page: “Are all chemicals covered?” – Paint bucket and Overhead Slide “Star”: “Discussion” Milk of Magnesia

Discuss the consumer product in detail. It is a major category of exempt hazardous chemicals.

Examples of chemicals that may be exempted under this category include solvents, oils (WD40), cleaners (Windex), paints (rattle cans).

The key to the discussion is use of products in the workplace for the purpose intended by the manufacturer and resulting in an exposure equivalent to the range of exposures (duration and frequency) that could reasonably be experienced by consumers.

Speaking to the class: “It’s not what you have stored in the supply room. You may have a case of 24 bottles because they were on sale. It’s how much you are using. This exemption is sometimes called the “dumpster rule” because if you look in the dumpster (which was emptied 3 days ago), and you see 7 empty cans of WD-40, you are using more than what could reasonably be experienced by consumers.”

Please expect active participation with this exemption. Recommend that if they aren’t sure whether to exclude a product its better to add it to their HazCom Program.

Overhead Slide “Discussion” – Milk of Magnesia
The answer is “yes.” The employer would need to add this product to the HazCom program because its not being used for the purpose intended by the manufacturer.
Overhead Slide: “Warehouses and retail stores”

**Answer: TRUE**

Warehouses and Retail Stores have simpler procedures because the probability of exposure when handling unopened and sealed containers is lower than when using, mixing, applying, those chemicals.

Most of the injuries in Warehouses and Retail Stores are ergonomic, not exposure to hazardous chemicals.
Overhead Slide: “Labs”

Answer: TRUE

Similar to the discussion about lower probability of exposure to workers in Warehouses and Retail Stores in addition to the fact that Lab workers are usually highly trained in the handling of hazardous chemicals.
The main point of GHS is that because of ever increasing international shipping of hazardous materials it is necessary to have a global system of **Classifying**, **Categorizing**, and **Labeling** of chemicals.

GHS is expected to be a changing, improving system as global commerce and other factors require or call for changes.

OSHA adopted GHS in 2012.

Who else has adopted GHS? Several nations of the world, including many in Europe who adopted GHS several years ago.

As OSHA did in 2012, the other United States agencies named on this **Workbook Page** would also have to make changes to their respective laws to align them with GHS. (Perhaps if OSHA’s aligning their HazCom with GHS goes smoothly, other agencies will also adopt GHS.)

Please refer the **Attendees** to the agencies mentioned on this **Workbook Page** or others not mentioned such as MSHA, if they have specific questions about how GHS will affect the rules they handle.
EPA regulated pesticides: Later on in this Workbook, in the Safety Data Sheet section, there is a discussion point about how EPA will deal with GHS.
Overhead Slide “Star”: “Advantages”

The text on this Workbook Page comes from the Federal OSHA’s GHS web page.

Please let Attendees know that there are some very good resources about GHS on the Federal OSHA/GHS website. It is recommended that you visit the Federal OSHA/GHS website before conducting this workshop. Federal OSHA has many tools for complying and meeting GHS such as fact sheets, quick cards, Q&A, videos, webinars, downloadable pictograms, links, and press releases. https://www.osha.gov/dsg/hazcom/index.html.

Of many, 3 areas were selected to highlight the Advantages of GHS: Training, Injuries & Illnesses, and Economic.

Example Q&A for each of the three images on this Workbook Page:

Q: Do you have low literacy workers? If so, how do you currently train them? Do you use “show & tell?”

Q: Do you know of anyone who’s been hurt or become ill from chemicals?

Q: Who uses the SDSs in your company? Would it be more effective if SDSs looked the same? And had the same information in each of the 16 sections? If “yes,” how?
Please cover the MAIN POINT of the following Workbook Pages is that if the end users (employers and employees) know what it means when manufacturers and importers do to classify and categorize chemicals, they will gain a much greater level of respect for the Labels and the Safety Data Sheets because they are based on science (and not as some say about the old MSDSs, written by personal injury attorneys.)

The Classification and Categorization of substances and mixtures of hazardous chemicals is the basis for the new Labels (with Pictograms) and the new Safety Data Sheets (SDSs).

This is the most far-reaching change in HazCom. With the GHS mechanism, manufacturers and importers must use specific criteria to classify and categorize the hazards of the substances and mixtures of the products they make or import.

The winner with GHS is the end-user. It means that the hazards of products from other parts of the world are more likely to have consistent Classification, Categorization, Labeling, Pictograms, and Safety Data Sheets.
Who is responsible . . . ?

Answer: A. The manufacturer and importer is responsible to classify and categorize the chemicals.

Please emphasize that it is the manufacturer and importer that is responsible to classify and categorize the chemicals. It is likely that Attendees will ask what happens if an employer or worker mixes two or more different hazardous chemicals. Does that make them a “manufacturer?” The answer is usually “no.”

Speaking to the class: “If you mix rum and coke together you don’t get a new chemical, you get a “rum and coke”.”

Most employers who mix products that have already been classified, categorized, and labeled, by the manufacturer are not “making” chemicals, they are “using” chemicals. Mention that they should review the respective SDSs and determine the measures necessary to ensure worker safety. If an employer isn’t not sure about what they are thinking of mixing (possibly mixing incompatibles), advise them to first get information by contacting the manufacturers of the chemicals or other sources of help.
Overhead Slide “Star”: “How It Works”

This Workbook Page explains in two simple processes with corresponding graphics, how the Classification and Categorization of substances and mixtures of hazardous chemicals works.

This Workbook Page also identifies Appendix A and Appendix B of the HazCom Rule CFR 1910.1200 for the first time. These two appendices are the basis of the GHS. Appendix A covers the Health Hazards and Appendix B covers the Physical Hazards.

The next few pages provide simplified examples of how this classification and categorization process works. It is recommended that you review or, at least browse, these Appendices before covering this section of the Workshop: http://www.orosha.org/pdf/rules/division_2/2Z_1200_haz_com.pdf has the complete rule. Scroll down to the Appendices.

It’s recommended to remind Attendees that is the manufacturer and importer who is responsible to do the classifying and categorizing of these hazardous chemicals.
Overhead Slide “Star”: “Appendix A & B”

In your instructions or comments for this page, link the Health Effects in Appendix A with its four Pictograms and . . . the five Pictograms associated with the Physical Effects in Appendix B.

The “Corrosive” Pictogram is both a Health Effect (for skin tissue and/or the eye) and a Physical Effect (on metals).

Please read or have the Attendees read the categories. Allow some time for this. Please mention that the GHS skillfully incorporated everything “bad” that can happen into 9 pictograms.

Some Attendees may find it interesting that these simple but significant pictograms (only 8 are OSHA’s) managed to incorporate the hazards from radioactive elements and bloodborne pathogens!

Before going to the next Workbook Page, mention that each of the pictograms have names and the names will be covered shortly.
Overhead Slides 2: “CLASSIFY & CATEGORIZE Oatey PVC Glue” and Overhead Slide “Star”: “DONE!”

This Workbook Page uses Oatey PVC Glue to illustrate how the Classification and Categorization works.

Using Appendix A and B:

Step One: The Manufacturer (Oatey), identifies, reviews, the relevant data of the contents: Tetrahydrofuran, Methyl ethyl ketone, Cyclohexanone, Acetone, PVC (Chloroethylene, polymer). If the Manufacturer finds that the contents are Hazardous Chemicals, they have met the first part of GHS which is Classifying the substance(s) or mixture.

Step Two: Still using Appendix A and B, the Manufacturer (Oatey) Categorizes the substance(s) or mixture. In other words, it determines “how bad” is the health and physical effects.

Point of interest on Oatey PVC Regular Clear Lo-VOC: All are Health Effects except one Physical Effect: Flammable Liquid.

Q: Ask the class if Oatey found a component in the Glue that causes cancer. The
answer is “yes,” Carcinogenicity.

Please show the Overhead Slide “Done!” and mention how the Classification, Categorization, Labels, SDSs an Training on Safe Use are ready for distribution. When an Employer purchases the Oatey Glue, he/she will have access to the label, the SDS, and have important tools to conduct training on safe use.

Q: Ask the class if they find this process Logical? Effective? Comments or Questions?
The prior pages of this Workbook emphasized the Classification and Categorization process as a whole.

The next 2 Workbook Pages will cover how the Categorization process works in more detail.

This Workbook Page will show how Categorization works with a Health Effect. The next Workbook Page will show how Categorization works with a Physical Effect.

Next, mention that for this example, lye (sodium hydroxide) is being used as an example of how a chemical is Categorized (how bad) for “damage to the eye.”

Read or have the Attendees read the definitions for “serious eye damage” and for “eye irritation” on this Workbook Page.

After the definitions have been covered, point out that lye is Categorized as Category 1 “serious eye damage.”
Now, point out that other products such as general use solvents which have less harmful substances are not as harmful to the eye. “Eye irritation” has two categories: 2A and 2B. and Focus the Attendees attention on how different Pictograms and Signal Words CHANGE for each of the Categories to reflect the range of danger.

Category 1 = Corrosion and “Danger”
Category 2A = Exclamation Mark and “Warning”
Category 2B – No pictogram and “Warning’

An important Point is that GHS will do a much better job of effectively Communicating Hazards through the Categorization of hazards than the old 1994 HazCom rule.
Overhead Slide “Star”: “Appendix B: Categorize a Physical Effect”

Highlight the fact that they are reviewing the Pictograms associated with the Physical Effects (Flammables).

Next mention that for this example, “flammable liquid” is being used as the example.

Compare and Contrast **Category 1 to Category 4**:

First, read out loud the definitions of Flammable Liquid and Flash Point.

Next, point that Category 1 flammable liquid has a Flash point at temperatures **below 73.4°F** and boils at temperatures **below 95°F**. (That's makes it **very** flammable.)

Next, contrast that a Category 4 flammable liquid has a Flash point at temperatures **between 40°F** and at or below **199.4°F**.

**Question:** Ask the class to go back a page or two to see at which category of flammable liquid is the Oatey Glue.

**Answer:** Category 2
Also, point out the differences in the Pictogram and the Signal Word for each of the categories. There are two “Danger” and two “Warning”

The Workshop will now transition from Classification and Categorization to Labels (and their Pictograms), SDSs, Written Hazard Communication Program and Training.

IMPORTANT: Emphasize that the Classification and Categorization is the BASIS of the GHS Labels, SDSs which follow next. Convey that Labels and SDSs should be more meaningful now that they know how substances and mixtures are classified and categorized under HazCom 2012 (GHS).
Overhead Slide “Stars” 2: “Pictogram Parts” (Contains 3 Animation On Click to reveal the three colors one at a time.)” and “Pictograms” with the nine (9) Pictograms.

Ask the Attendees to “guess” which colors are associated with each Pictogram while showing Overhead Slide “Pictograms” which has 3 “Animations On Click” to reveal the correct answers. When completed, show the second Overhead Slide, “Pictogram Parts.”

Border = Red
Background = White
Symbol = Black

The Environmental Pollutant Pictogram. If you want, ask the class a trick question: “If not OSHA, who is the U.S. agency that has jurisdiction over the 9th Pictogram, Environmental Effects?” Answer: Attendees will likely answer EPA! Its a trick question because EPA has not adopted GHS. This means that the Environmental Effects Pictogram is without a “home.” (This is not true for other countries that have fully adopted GHS.)
Appendix C is the Appendix in the new 2012 HazCom rule for the Label.

Use the Overhead Slide to show the different required elements.

The new 2012 HazCom Label has some significant changes. The most obvious is the Pictogram. Emphasize that with GHS labels, Employers and Workers will be able to improve their safety and health programs.

For example, an employer can determine which workers can handle certain chemicals based on the pictogram. "For example, if the pictogram on the label has a Skull and Crossbones, only "Roy, Linda, and Reggie" can handle it because they have special training."

precedence:
Please mention OSHA didn’t want certain words (Warning AND Danger appearing together) and certain symbols which together could cause doubt as to the hazard. Mention that the “Exclamation Mark” is “kicked off” the label under three (3) unique circumstances.

Reinforce that it is the Manufacturer or the Importer that is responsible for ensuring that the Label is correct and accurate.
Overhead Slide “Star”: same as prior “Labels”

Use the Overhead Slide to show that the Signal Word, Precautionary Statements and Pictograms must be “close together” on the label.

Please add that the new GHS Labels will not look exactly like the one on this Overhead Slide. Add that this only a Sample Label.

The Supplemental Information section on the label (lower right in this example), is for the purpose of extra information under these conditions: Supplementary information on the label is limited to when it provides further detail and does not contradict or cast doubt on the validity of the standardized hazard information. Also, where the chemical manufacturer, importer, or distributor chooses to add supplementary information on the label, the placement of supplemental information shall not impede identification of information required by this section.

Something to know: Since the “beginning of time” (actually 1970 when OSHA wrote the Hazard Communication Standard), Labels and SDSs (former MSDSs) have always been required to be in English so they can be used for Emergency Responders and Medical Personnel.

Advice on other languages: If employers need to provide label and SDS information in other languages, recommend that they contact the manufacturer to see if they have them in other languages. Sometimes a company has subsidiaries in other counties and labels and
SDSs may be available from them. If not, you can recommend that the employer translate the main elements onto cards and create their own “fact sheets.”
Overhead Slide: “Pictograms” (Contains 1 Animation On Click)” The animation on this slide has a duration of 5 seconds.

After the Overhead Slide completes its animation, Black-Out the Overhead Slide with the “B” key on the keyboard. The purpose of this Workbook Page is for the Attendees to begin memorizing the Chemicals covered by each of the Pictograms. Therefore, please Black-Out the Overhead Slide to reduce distraction.

Start this exercise by guiding the Attendees to identify each of the Pictograms as a HEALTH or PHYSICAL effects. Recall that there are 4 Health Effects and 5 Physical Effects Pictograms.

Ask them to place an “H” for Health Effects or a “P” for Physical Effects in the same box as the Pictogram. Mention that Attendees can go back a few pages in the Workbook if they need to for the answers.

On this Workbook Page, this the correct order:

Flame: P
Oxidizer: P
Exclamation Mark: H
Exploding Bomb: P
Corrosion: Both H and P
Gas Cylinder: P
Health Hazard: H
Skull and Crossbones: H

Reminder to the Attendees: There are 4 Health Pictograms and 5 Physical Pictograms (and both share Corrosive).

Next, ask Attendees to read the Chemicals covered for each Pictogram and when they majority have completed the task, proceed to the following Workbook Page. Point out that some Pictogram have only one chemical covered (Oxidizer, Gases Under Pressure, Acute Toxicity) while other Pictograms have many chemicals covered (Flame and Exclamation Mark and Health Hazard).
**Overhead Slide “Star”: “Pictogram Game”**

If the attendees are not already grouped by tables, ask the **Attendees** to group themselves in small groups. Ask them to introduce themselves.

Start the Group Game (exercise.) Read the Instructions. Please allow sufficient time for this exercise to run its course, please do not cut it short.

While the **Attendees** are working on the answers, turn to the **Appendix** for the **Answer Key** to this exercise.

Please reinforce the importance of this exercise by reading out-loud, all the answers.

**Appendix Resource:** This **Workbook** contains a copy of the OSHA “Quick Card” for GHS Pictograms in the **Appendix**. Before proceeding to the next **Workbook Page**, invite the **Attendees** to the **Appendix** and show them that this game/exercise is in the **Appendix** for them to use for future training.
Overhead Slide “Star”: “Labels” for the next pages covering labels.

Please remind the Attendees that Primary Container Labels are based on the Classification and Categorization in Appendix A and Appendix B.

Effective hazard communication means that if chemicals are moved from a Primary Container, it is important (critical in some cases), that the precautionary statements on the Primary Container Label are not lost.

Please mention/Read the words under Secondary containers. Mention them specifically, many employers get cited for this hazard.
Again, please remind the Attendees that Primary Container Labels are based on the Classification and Categorization in Appendix A and Appendix B and that effective hazard communication means that if chemicals are moved from a Primary Container, it is important (critical in some cases), that the precautionary statements on the Primary Container Label are not lost.

Please mention/Read the words under Stationary Process Containers.

Please mention to the Attendees that the new HazCom rule has different implementation dates starting in 2012 and going through 2016. The last implementation date is June 1, 2016 covers "alternative workplace labeling" which may regularly affect Stationary Process Containers.

(The complete implementation dates are covered later in this Workbook).
Overhead Slide “Star”: same as prior “Labels”

Again, please remind the Attendees that Primary Container Labels are based on the Classification and Categorization in Appendix A and Appendix B and that effective hazard communication means that if chemicals are moved from a Primary Container, it is important (critical in some cases), that the precautionary statements on the Primary Container Label are not lost.

Please mention/Read the words under Portable, Secondary Containers for Immediate Use.

Please mention that this hazard is one of the most cited by Oregon OSHA.
Overhead Slide “Star”: same as prior “Labels”

Please cover this information ask the **Attendees** if they have questions. If you have time, please cover the Oregon OSHA **Compressed Air Pipe Labeling** Interpretation.

This interpretation, dated 9-25-2006 says that a compressed air at above 30 psi is physical hazard and must be labeled in accordance with subsections (A), (B), (C) and (D) of OAR 437-002-0378. (The Pipe Labeling Rule).
Overhead Slide: “NFPA 704 - HMIS” – for this and next page.

Please cover the basic differences between NFPA 704 and HMIS (on the next page).

Appendix Resource: This Workbook contains a copy of the NFPA 704 / OSHA “Quick Card” in the Appendix.

If Attendees ask why GHS adopted a system that is inverted to NFPA 704 and HMIS please mention that many systems in the United States and the world are similar to the GHS where “1” is the most dangerous. Example: The United States Armed Forces’ defense readiness condition (DEFCON) system:

**DEFCON 1** = Nuclear war is imminent (Color White)
**DEFCON 2** = Next step to nuclear war (Color Red)
**DEFCON 3** = Increase in force readiness above that required for normal readiness (Color Yellow)
**DEFCON 4** = Increase intelligence watch and strengthened security measures (Color Green)
**DEFCON 5** = Lowest state of readiness (Color Blue)
Cover the similarities between HMIS and NFPA 704 using inverted rating systems.

You may want to mention that both NFPA 704 and HMIS offer the advantage of providing LARGE signs which makes it easier to know the hazard before approaching the hazardous chemical in question. Albeit now with inverse numbers to GHS.

Please mention that GHS doesn’t require the severity rating be listed on the label. This rating information will be found on the Safety Data Sheet.

**Appendix Resource:** This Workbook contains a copy of the OSHA “Quick Card” for GHS Label in the Appendix. Before proceeding to the next Workbook Page, invite the Attendees to the Appendix and show them the “Quick Card” and mention that they can freely duplicate and use for future training.
Please mention that the Main Purpose by OSHA for the SDS (old MSDS) was that it be available to use in an emergency by First Aid Responders, Medical Personnel, and Hazardous Materials Responders.

Cover the fact that the Secondary purpose by OSHA for the SDS is as a Management Tool for employers. For example, upon receiving an SDS, management must decide who can and cannot have access to the chemical, the level of supervision and training required by the workers handling the chemical, and to determine what the appropriate emergency response in the event of spill or other situation. Example: Clean-up after a spill: Should it be through “normal” response by the worker(s), or should the chemical spill require the use of Hazardous Materials Responders.

Please mention that in a few pages in the Workbook, the Attendees will conduct a detailed review of an SDS to familiarize themselves with the critical important information contained SDSs.

Please ask Attendees what they think “readily accessible” means.

A suggestion for a brief discussion on this term is that Ready accessibility to SDSs (MSDSs) means that the employee has immediate access to read and refer to the information. This means that it is the employer's obligation to ensure that SDSs
(MSDSs) are readily accessible **during each work shift** to employees when they are in their work areas.

**Available electronically? Yes.** As long as there are no barriers to employees accessing the SDSs (MSDSs), storing the MSDSs electronically is acceptable, as long as there is a backup system in place in case the primary system fails or if services that the primary system relies on, such as electricity or telephones are interrupted. This backup system can also be electronic, but it must be separate from the primary system and not rely on the same services as the primary system, so that the SDSs (MSDSs) may be accessed immediately in the event of an emergency.
Overhead Slide: “SDS Review the 16 Elements” - This Overhead Slide shows a partial image of the first page the Oatey PVC Glue SDS found in the Appendix of this Workbook. This Oatey PVC Glue SDS can be used for the upcoming SDS training exercise. (You may of course, choose not to use the Oatey PVC Glue SDS and instead use another one. If you choose another one, please make copies of them so that each Attendee receives a copy.)

Please link this Workbook Page and the Next, with the upcoming SDS training exercise by mentioning AGAIN that in a few pages in the Workbook, the Attendees will conduct a detailed review of an SDS to familiarize themselves with the critical important information contained SDSs.

Mention that all sections of an SDS are important. Then, please ask the Attendees to pay special attention to the first 6 Sections of an SDS.

Then, ask the Attendees if they notice OSHA’s Main Purpose for the SDS (old MSDS) which was (as was covered in the previous Workbook Page) that it be for use in and EMERGENCY by First Responders, Medical Personnel, and Hazardous Materials Responders.

Please link specific Sections of the SDS to something practical based on your experience:

For example Section 8 of this Workbook Page is where the PPE for the product will be identified. Always.
Another example, if the hazardous chemical is a gas, Section 9 of this Workbook Page will identify the density of the gas. If lighter than air (less than 1) (i.e., hydrogen 0.08), the gas will rise upward toward ceiling lights, overhead ignition sources such as salamander heaters. If the gas is heavier than air (greater than 1) (i.e., propane 1.56), the gas will drop toward the floor/ground and potentially be ignited by a water heater pilot light or other ignition source.

In summary, emphasize that and SDS is not just a piece of paper (or computer document if the employer stores their primary use SDS on a computer). SDSs are an integral part of the Hazard Communication Program and could save a worker’s life.

Appendix Resource: This Workbook contains a copy of the OSHA “Quick Card” for GHS SDS in the Appendix. Before proceeding to the next Workbook Page, invite the Attendees to the Appendix and show them the “Quick Card” and mention that they can freely duplicate and use for future training.
Overhead Slide: “SDS Review the 16 Elements” and Overhead Slide “Star”: “Pesticides Section 15”

This Workbook Page is a continuation of the SDS elements.

Please mention that Sections 12-15* are not covered by OSHA.

Overhead Slide: “Pesticides Section 15”

If any Attendees are Certified Pesticide Applicators, they may have additional questions about how EPA is going to deal with the SDS versus EPA Label. Suggestion, repeat the Basic Rule and if additional information is needed, please refer them to EPA’s designee in Oregon for pesticide labels, the Oregon Dept. of Agriculture, 503-986-4635.

If you would like, you can mention that the Pictograms on this Overhead Slide “Pesticides Section 15”, shows the 5 GHS Pictograms most likely to be found on a pesticide SDS.

The retention of Safety Data Sheets is in not in the HazCom rule but rather is in Access to Employee Exposure & Medical Records rule, Division 2 (Z), 29 CFR 1910.1020.
Overhead Slide “Star”: “Written Program”

Keep this Overhead Slide “ON” to cover the different parts of the Written Program by reading out each of them and linking them to areas covered earlier in the Workshop and Workbook.

Mention to the Attendees that the purpose of having the actual language of Oregon OSHA’s Hazard Communication Program template on the next pages which cover the Written Program, is to cover the key parts of the Written Program. Important: It isn’t necessary for the instructor or the Attendees to read or to cover in full detail each of the elements of the Written Program. Rather, it is meant to guide the Attendees on how the HazCom Rules affect different parts of an employer’s safety and health responsibilities.

In a one sentence: The Written Program is the employer’s opportunity to “think things through” as it relates to Hazardous Chemicals, Workers, Duties, Responsibilities, Training, and the overall Safety and Health Management Program.

Use the Overhead Slide, “Written Program” to cover the different parts of the Written Program by reading out each of the main headings (main headings only).

As you flip through the next few Workbook Pages, please link the elements to information already covered in this Workshop.
For example, **Ask:** Do all Hazardous Chemicals have to be on the Chemical List? **Answer:** No, the list of exemption were covered earlier in the Workbook (Flip back to the exemptions Workbook Pages if necessary). Do same for Labeling, Safety Data Sheets and Chemicals in Pipes.

Please remind the Attendees that it is best to complete the Written Program as soon as possible if they’ve not do so already as it is one of the #1 most cited violations by Oregon OSHA. But more importantly, its for workers’ safety.
Overhead Slide: “Written Program”

Please follow the Instructor Notes located on prior Written Program Workbook Page.
Before proceeding with the other elements of the Written Program, please pause to give Attendees some practical advice on how to manage the chemicals list and complete the Discussion exercise at the bottom of this Workbook Page.

Emphasize that the chemical list must use the “product identifier” as the name of the chemical. This means the name is that appears on the label and the safety data sheet. Why, because the rule says, “. . . a product identifier that is referenced on the appropriate safety data sheet . . . “

Please remind Attendees that the Chemicals List is a part of the Written Hazard Communication Program. Mention that the “signal word” and “location of use” columns are recommended because they are effective tools the employer can use to more quickly identify the more dangerous chemicals in the workplace. This information can help separate and segregate the “very bad” chemicals from the others. Employers for example could select certain workers to have additional training to handle the most hazardous chemicals. This may have the benefit of reducing training, PPE, and supervision costs.

The Discussion exercise on this Workshop Page has some elements of Safety and Health Management which can be incorporated into the discussion with the Attendees. For example, Hazard Anticipation and Detection, Management Leadership, Safety and Health Training, Employee Participation, Planning and Evaluation, and Administration and Supervision.
Example of a written hazard communication program. Your written plan should contain the elements in this example.

SAFETY DATA SHEETS
Safety data sheets are readily available to all employees during their work shifts. Employees can review safety data sheets for all hazardous chemicals used at the workplace. [Identify the file location if they are stored in a paper file. Describe how to access them if they are stored electronically].

The safety data sheets are updated and managed by [name of person or job title responsible for managing the safety data sheets]. If a safety data sheet is not immediately available for a hazardous chemical, employees can obtain the required information by calling [name of person or job title responsible for providing information in an emergency].

TRAINING
Before they start their jobs or are exposed to new hazardous chemicals, employees must attend a hazard communication training that covers the following topics:

- An overview of the requirements in Oregon OSHA’s hazard communication rules.
- Hazardous chemicals present in their workplace.
- Any operations in their work area where hazardous chemicals are used.
- The location of the written hazard communication plan and where it may be reviewed.
- How to understand and use the information on labels and in safety data sheets.
- Physical and health hazards of the chemicals in their work area.
- Methods used to detect the presence or release of hazardous chemicals in the work area.
- Steps we have taken to prevent or reduce exposure to these chemicals.
- How employees can protect themselves from exposure to these hazardous chemicals through use of engineering controls, work practices, and personal protective equipment.
- An explanation of any special labeling present in the workplace.
- Emergency procedures to follow if an employee is exposed to these chemicals.

[Name of person or job title responsible for managing the training program] is responsible to ensure that employees receive this training. After attending the training, employees will sign a form verifying that they understand the above topics and how the topics are related to our hazard communication plan.

Overhead Slide: Return to: “Written Program” - this Overhead Slide is the same as the prior one but has the first to areas “greyed out”.

Please follow the Instructor Notes on the prior page(s).

Please ask the Attendees WHO manages the SDS and the Training. Also, please follow-up and ask HOW are these two critical elements of the Written Program are done. Practice active listening. Ask other Attendees for their own examples. Compare and Contrast between how “things are done” between small (Mom & Pop) businesses and large businesses.
Overhead Slide: “Written Program”

Please follow the Instructor Notes on the prior page(s).

Hazardous Non-Routine Tasks and Contractors have not been covered in this Workshop. Until Now.

Please cover these two important elements of HazCom while on this Workbook Page at this time.

Provide and example of Hazardous Non-Routine Task. Create the link that what may be hazardous and non-routine for one employer, it may not be another. For example, welding on metal can be a Hazardous and Non-Routine for an assembly plant that welds 3-4 times per year. But, it would not be a Hazardous and Non-Routine task for an auto-repair shop whose workers weld continuously through the day, week, month, and year.

Please cover the Contractors section. Make the link that this section of the Written Program is mainly about establishing effective two-way communication. If necessary, link some discussion between the Contractors’ workers also having the right to “Readily Available” SDSs and vice versa for the Contracting Employers’ workers.
Overhead Slide “Star”: “Written Program Links” There are several active links on this Overhead Slide.

This Workbook Page contains Active Links to the Oregon OSHA web page.

Optional: If there is connectivity to the Web from your location, you could show the Attendees how to navigate to the Oregon OSHA website containing resources on Hazard Communication.
Open discussion for critical element of employee information and training with a question:

**Ask:** Can someone describe how you do HazCom Training? Interact with the **Attendee** who responds. **Ask someone else.** Contrast that response with the first.

Cover some of the advantages of group versus individual training.

- **Group** training gives information to many. Easier to ask/answer questions. Many people learn from listening to other’s questions.
- **Individual** training is good for the hands-on piece. OJT. Allows for testing on skills and knowledge by observing learner perform the task.

Use and example from your own experience in having received group training and/or individual training. Which method did (do) you prefer? Does it depend on the topic? The instructor? Please use your own experience to obtain active participation.
Overhead Slide: “TRAINING” – What needs to be covered?

A key element of this Workbook Page is that it is the SOURCE of the first exercise (pencil and checkboxes) which was covered near the start of this Workshop. In that exercise, Attendees were asked to think of a hazardous chemical that they use and to put a checkmark in the box if they knew the dangers to their health from the chemical, exactly the personal protective equipment (PPE) that they must use and exactly what to do in the event of an emergency.

This Workbook Page is copied from the Written Hazard Communication Program a few pages back in this Workbook.

Please Ask the Attendees to locate those important elements (Health, PPE, and Emergency) on this Workbook Page and place marks on the margin or underline those words.

Summarize that the three elements are only 3 of ALL the items in the above bullets that must be covered in the HazCom Training.
The FINAL!

Please mention to the Attendees that this Practice is actually “real” in the sense that it what is expected of any employer under HazCom to ensure workers are not injured or made sick by the hazardous chemicals they are assigned to handle and use.

You may choose to use the SDS in the Appendix of this Workbook or if you may use another SDS. If you choose to use one of your own, provide a copy to each Attendee.

Please encourage Attendees to write notes in the margins of their practice SDS. In fact, encourage the Attendees to select two or three SDSs for products in common use at their own facility, make copies of them for training, and make one of the SDSs their “master” to conduct training. In addition to three elements of training for this Practice, cover other elements of interest that can be found on SDSs. For example: Density, Odor, Color, Solid, Liquid, Gas, etc., etc. Some of the qualities of hazardous chemical may seem obvious but others . . . not so much. SDSs can be used to make HazCom training interesting. They are more that a piece of paper.

TRAINING PRACTICE: Please leave Overhead Slide: “Training Practice” “ON” during this exercise. Encourage team/group participation. Team/groups can divide the search. One can search for Health effects while another focuses on Physical effects. The same for the Controls and Emergencies.

Conclude the Practice by asking for feedback. Ask Attendees how they plan to make this type of training a reality in their workplaces. Listen actively. Ask others for their
opinions about how they plan on making their HazCom Training more Effective.
Overhead Slide “Stars” 2: “Phase-in Dates” and the “December 1, 2015”

The December 1, 2013 training is an overview of the 2012 HazCom rule. The Appendix of this Workbook has the Federal OSHA Fact Sheet which covers these requirements.

The following text and links are available to the Attendees on the Appendix Page of this Workbook:

For more information about the December 1, 2013 Training
A word about browsers: If using Internet Explorer browser, it must be IE-9 or higher (not an issue with other browsers like Firefox and Chrome.)

An “App” that shows the same information that can be seen in the OSHA GHS “Quick Cards”:
http://www.orosha.org/subjects/hazard_communication.html

A free online session from SAIF Corporation:
http://www.orosha.org/educate/GHS-SAIF/player.html
Overhead Slide: “December 1, 2015”

December 1, 2015 means the following:

After December 1, 2015 distributors shall not ship product that does not have a GHS-aligned label. Another way to look at this is that if an employer purchases product before December 1, 2015, there’s no time limit as to when the employer can use it up even if it has the old pre-GHS label. Suggest that employers keep their receipts.
Overhead Slide “Star”: “Appendices” - There are several active links on this Overhead Slide.

Because the Appendices in this Workbook have been referred to several times, Attendees will already be familiar with these resources. Remind Attendees that the resources in the appendices are in the public domain and may be freely duplicated and shared.

Because of the file size, these documents are on in a separate file. You can obtain a copy of the Appendix materials from http://www.orosha.org/education.html or, by contacting Reggie Robb, regina.k.robb@state.or.us 503-947-7443.
Last page of *Workbook.*
Oregon OSHA Public Education Mission:
We provide knowledge and tools to advance self-sufficiency in workplace safety and health

Consultative Services:
• Offers no-cost on-site assistance to help Oregon employers recognize and correct safety and health problems

Enforcement:
• Inspects places of employment for occupational safety and health rule violations and investigates complaints and accidents

Public Education and Conferences:
• Presents educational opportunities to employers and employees on a variety of safety and health topics throughout the state

Standards and Technical Resources:
• Develops, interprets, and provides technical advice on safety and health standards
• Publishes booklets, pamphlets, and other materials to assist in the implementation of safety and health rules

Field Offices:

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<tr>
<td>Portland</td>
<td>503-229-5010</td>
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<tr>
<td>Salem</td>
<td>503-373-3274</td>
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<td>Eugene</td>
<td>541-686-7662</td>
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Salem Central Office:
Toll Free number in English: 800-922-2689
Toll Free number in Spanish: 888-844-8086
Web site: www.oresha.org