SkillsUSA

Career Essentials: *Assessments*

Print[ED]

Career Essentials: Assessments

Teacher Preparation Guide For Use with the Career Essentials: Assessments

Discover, Develop and Validate Students' Knowledge and Skill

OFFSET PRESS OPERATIONS, BINDING AND FINISHING ASSESSMENT

Introduction to the Career Essentials: Assessments

The Career Essentials: Assessments can help both students and teachers discover students' occupational strengths. By implementing the Career Essentials: Assessments, students and teachers can collaboratively develop a life-long learning plan to validate and enhance students' skills and knowledge. Assessment data results are beneficial for students, teachers and administrators in validating student learning, and improving programs and their accountability.

This teacher preparation guide is a tool developed for instructors to help students capitalize on their unique strengths, which can improve individual student performance and provide a clear way forward for student success.

The Career Essentials: Assessments Teacher Preparation Guide provides an easy-to-follow road map to implement the Career Essentials: Assessments. The guide is not meant to be curriculum nor should it replace that which already exists. It provides specific information regarding the Career Essentials: Assessments so teachers can identify existing curriculum areas that may need additional emphasis.

The guide ultimately helps teachers provide students with learning opportunities. Its goal is for students to become comfortable and successful with the Career Essentials: Assessments.

Inside the guide, teachers will find:

- Major content areas of the assessment
- A blueprint of the assessment competency areas
- A checklist of the various competency areas within the assessment
- Access to a trade- or technical-specific online 10-question demo assessment
- Resources used for the assessment development
- Access to an employability skills based, online 10-question practice assessment to help students navigate the assessment system

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What are Career Essentials: Assessments?
Career Essentials: Assessments™ Assessments are online assessments that evaluate technical and employability skills and knowledge. They are the way ahead for the next generation of our American workforce, and they help candidates validate their technical skills and knowledge to potential employers. They also help local instructors demonstrate the value of their programs, while supporting local industries with a pool of potential employees that has been tested by a system they can trust.

Each assessment was developed by a panel of industry, high school and college/postsecondary subject matter experts (SMEs) using national technical standards. Career Essentials: Assessments were created by industry to ensure relevance to entry-level skills, meet Perkins IV accountability requirements and provide certificates to students who achieve industry-defined scores. They ensure your students are workforce ready.

Career Essentials: Assessments incorporate photographs, videos, animations and illustrations to ensure clarity for each technical question. Drag-and-drop and multiple-choice questions appeal to visual and kinesthetic learners and test content knowledge rather than test-taking abilities. Even simple multiple-choice questions are brought to life through pictures and animations.

Assessments are available in more than 40 trade, industrial and technical areas. A rigorous and educationally sound process captures critical competencies, standards and criteria as defined by industry.

Academic core and critical skill areas also exist in each assessment. State-level academic curriculum specialists identified connections to national academic standards.

Each one-hour assessment includes 50 questions. Under the supervision of a proctor, the integrity of each test is ensured by offering multiple unique versions of the assessment, which measure the same core and critical competencies. Even within the same version, questions and answers are displayed in varying orders to prevent test takers from copying others. The Career Essentials: Assessments are designed to be user-friendly and intuitive for students.

For complete information regarding the Career Essentials: Assessments and to see all assessment areas, please visit the website at:
www.careeressentials.org/assessments

Using the Career Essentials: Assessments
Every classroom is unique. You can use the Career Essentials: Assessments in a way that best suits your program and students. The following directions are SkillsUSA's suggested and preferred method to implement the assessments so that your students gain the most from the results.

The most important step in the Career Essentials: Assessments process is to select the correct assessment for your students. You are key to the selection process. Without your involvement, the wrong assessment may be selected. Assessment titles do not provide enough information for proper selection. Review the various assessment categories that best correspond to your program.

Next, look at each of the assessment titles within the category and the corresponding blueprint. The blueprint will tell you which competencies and subjects are addressed in the assessment.

Cross-walk the various blueprints with your classroom curriculum. The assessment blueprint will show what's emphasized and how competencies are weighed. Please remember the Career Essentials: Assessments are based on national industry standards, so the assessment may not perfectly align with the existing curriculum. Content may need to be added or emphasized to better prepare students for the Career Essentials: Assessments.

Once you have selected the assessment that best fits your program, administer that Career Essentials: Assessments at the beginning of your students' final program year. This could be considered a pre-test.

Assessment results are available as soon as your student completes the assessment. The report provides you with a gap analysis to identify your students' learning needs according to each competency area within the assessment. Dynamic reports compare your students' performance to the current state and national averages. Reports also enable you to track a student's progress on an individual basis. The assessment pre-testing results provide you with a benchmark for your students and identify student learning gaps. This data may help you adjust your own curriculum and identify areas that may need more or less emphasis. The data can be shared with students so everyone can focus on learning areas that need improvement during the school year.

Then, at the end of the school year or program semester, administer your specific Career Essentials: Assessments a second time as a post-test.

Use post-test data to improve or adjust curriculum once again for your next program year. This way, curriculum adjustments are made using the student testing data rather than arbitrarily making adjustments.

This pre- and post-test process is a "win-win" situation for the teacher and especially the student! To ensure a quality process, SkillsUSA is ready to help at any time.

Preparing Students for the Career Essentials: Assessments

Provide each student with a copy of their trade- or technical-specific Career Essentials: Assessments Blueprint. Do this at the beginning of your course. Review and discuss the blueprint with your class, providing insight on the assessment weighting and what is emphasized.

Have students discuss how they can assist each other to prepare for the assessment.

Place the Career Essentials: Assessments Blueprint on the classroom wall. The blueprint will help students focus on the appropriate course content areas that align with the assessment. It

The Career Essentials: Assessments at a Glance

- **Select the correct assessment title. *Do not* have someone select the assessment for you, as there may be several titles that may relate to your program**
- **Review the assessment blueprint that best aligns with your existing curriculum**
- **Identify gaps in your curriculum, and use additional resources to enhance or align the curriculum**
- **Share the assessment blueprint with the students so everyone is aware of the expectation**
- **Have your students take the assessment at the beginning of their final program year as a pre-test**
- **Use pre-test data to identify learning gaps or strengths of individual students or the class**
- **Remediate the students using the data analysis from pre-test to enhance, emphasize and adjust learning objectives**
- **Have your students take the assessment a second time (as a post-test) at the end of the program year to determine learning gains/gaps**
- **Use post-test data to improve or adjust curriculum for your next program year**

will also help everyone to be aware of the program's goals and expectations.

Administer the Career Essentials: Assessments as a pre-test to identify student gaps. If possible, pre-test your students at the beginning of their final program year to identify learning gaps both individually and as a class. The data will provide an excellent "road map" to prepare students to take the assessment again (post-test) at the end of the program. Using the data, tailor the instruction to better prepare your students.

Use the Career Essentials: Assessments competency areas checksheets included in this guide to encourage class discussion and help students identify strengths and weaknesses.

Use the pre-test data to ascertain problematic learning areas. Have students identify discussion topics based on the various competency areas and their pre-test data results. Exercises, demonstrations and even questions can be developed by the students using their textbooks or other resources listed in this guide.

Assign homework that aligns to the assessment blueprint. Focus on a competency area within the assessment. Using the checksheets in this guide, have students develop questions and potential answers using the resources identified when developing the assessment. Use the questions for class discussion or "quiz bowl" activities.

Have students take the Career Essentials: Assessments trade- or technical-specific online 10-question demo assessment. This could be a homework assignment or done in class 30 days prior to taking the assessment the second time (as a post-test). This not only will provide students with specific sample questions and potential answers, but it will also allow students to experience the online system again and become more familiar with the types of questions they may encounter when taking the actual assessment.
Following the demo assessment, discuss the experience students had. What question(s) did they not understand? Did they have difficulty navigating the online system? This experience will help students be more comfortable and confident when taking the final assessment.

Discuss as a class or individually with students which question(s) were difficult. Facilitate a discussion to glean more information regarding why certain answers were wrong. Offer techniques students can use to better determine correct answers.

Workplace-Ready Skills
Through the Career Essentials: Assessments, you have the option for your students take an Employability Assessment. This assessments tests a student's workplace-ready skills such as communication, teamwork, time management and more. It can be used for any student in any occupational area as a practice test or a separate assessment.

If you use the Employability Assessment as a practice test have students take it in class. Not only can the Employability Assessment help students become familiar with the navigational tools of the assessment system, but it can also measure and make your students aware of another important skill set. It may also help them become comfortable in the testing environment.

See the Career Essentials: Assessments website for more information: *www.careeressentials.org/assessments*

For all Career Essentials: Assessments to be valid, instructors cannot be present in the room where their students will be taking the test. A proctor is required. Proctors can be other instructors, a school administrator or school counselor.

The Employability Assessment is *not* intended to familiarize students with the Offset Press Operations, Binding and Finishing assessment content.

Assessment Competency Areas
Career Essentials: Assessments Offset Press Operations, Binding and Finishing Assessment covers two major technical competency areas (unit areas). In the online assessment, these two competencies are tested with 50 interactive, multiple-choice items. Each competency area has a different number of items. The chart lists the major technical competency areas and the percentage of the assessment in each one.

Technical Competency Areas for Offset Press Operations, Binding and Finishing

Competency	Percentage of Area Assessment
Offset Press Operations	60%
Binding and finishing Competencies	40%

Academic Core and Critical Skill Areas
Academic core and critical skill areas also exist in each assessment. The SkillsUSA national technical committee identified that the following academic skills are embedded in the Offset Press Operations, Binding and Finishing training program and assessment:

Math Skills
- Use fractions to solve practical problems
- Simplify numerical expressions
- Solve practical problems involving percents
- Solve single variable algebraic expressions

Language Arts Skills
- Provide information in conversations and in group discussions
- Provide information in oral presentations
- Demonstrate use of nonverbal communication skills: eye contact, posture and gestures using interviewing techniques to gain information
- Demonstrate knowledge of appropriate reference materials

Connections to National Standards
State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards
- Math Standards
- Geometry
- Measurement
- Problem solving
- Communication
- Connections
- Representation

Source: NCTM Principles and Standards for School Mathematics. To view high school standards, visit: www.nctm.org/standards/content.aspx?id=16909. Select "Standards" from menu.

Science Standards
- Understands the structure and properties of matter
- Understands the sources and properties of energy
- Understands forces and motion
- Understands the nature of scientific inquiry

Source: McREL compendium of national science standards. To view and search the compendium, visit: www2.mcrel.org/compendium.

Language Arts Standards
- Students read a wide range of print and nonprint texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

- Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, and graphics).
- Students adjust their use of spoken, written and visual language (e.g., conventions, style, and vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students use a variety of technological and information resources (e.g., libraries, databases, computer networks and video) to gather and synthesize information and to create and communicate knowledge.
- Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Source: http://www.ncte.org/standards/ncte-ira. To view the standards, visit: www.readwritethink.org/standards/index.html.

Student Tools:
Access Directions for the Trade- or Technical-Specific Online 10-Item Demo Assessment
Have your students copy and paste this link *www.careeressentials.org/assessments/demo-our-assessments* into their browser. The sample programmatic questions will give you and your students an idea of the types of questions on the assessment and how the questions are generally written.

Student Tools:
Test-Taking Reminders
Encourage your students to have good study habits. Below are basic reminders to better prepare students for life-long learning and workplace success. You may want to have this discussion at the beginning of the year to encourage students to incorporate these strategies.

- Develop a regular study schedule
- Identify a specific location to study
- Always take notes while studying in class or on your own
- Take short breaks during your study session
- Perform "mini-testing" to make sure you understand and comprehend the program concepts
- Join small study groups to help focus on the program content
- If you need special assistance in testing, tell your teacher or counselor so they can make accommodations.

Student Testing Tips
The most important tip for your students is to be prepared mentally and physically for the testing session. Make sure to tell them to get plenty of rest and eat healthy. Suggest they wear comfortable and appropriate clothing to the testing session. If they are able to bring items to the testing session, such as a non-programmable calculator, make sure they have the items ready the night before. Have students check our website at *www.careeressentials.org/wp-content/uploads/2017/07/Permitted-Testing-Tools-Aids.pdf* for permitted tools or job aids that can be used during testing. The more organized they are before the testing period, the more relaxed they will be during the actual testing session.

Encourage your students to be relaxed and positive. If they begin to panic during the testing, suggest they take some deep breaths to relax and think positive thoughts.

Do not rush through the questions. Instruct your students to read the question and potential answers thoroughly. Tell them to make sure they know exactly what the question is asking before answering. Let them know that if they are unsure, they can mark the question and return to it.

Use process of elimination. If your students are not sure of the correct answer, tell them to

study the potential answers and eliminate the ones that they know are not correct.

If all else fails, tell students to *guess*. After they have exhausted all options, tell them to take their best guess at the correct answer. If they have studied the content area, they may intuitively know the correct answer. The Career Essentials: Assessments system does not penalize students for guessing and they may guess correctly!

Student Tools:
Offset Press Operations, Binding and Finishing Blueprint and Competency Area Knowledge Checksheets
The next section provides the assessment blueprint and detailed topics within each competency area covered within the Offset Press Operations, Binding and Finishing assessment. Photocopy and share the following blueprints and checksheets with your students so they can better prepare for each of the competency areas within the Offset Press Operations, Binding and Finishing assessment.

Summary and Quick Glance Testing Reminders
The Career Essentials: Assessments process is designed for program and curriculum improvement. This is a continuous improvement process to better meet the educational needs of your students by strategically using data results.

Advanced planning and preparation is a key component in implementing this process. Below we have attempted to summarize the steps in the suggested Career Essentials: Assessments implementation pre- and post-test process.

- Identify the correct assessment for your program
- Share the selected assessment blueprint with your students, parents, advisory board members and others. Place the blueprint on the classroom wall
- Pre-test your students at the beginning of their final programmatic year
- Use the data results to identify "learning gaps"
- Share the pre-test data with the student(s)
- Tailor learning experiences to meet student needs and supplement current curriculum
- Develop homework assignments around the competency knowledge checksheets located in this guide
- Have students take the demo 10-question practice test 30 days prior to the post-test
- For students that need more time in the actual testing environment, use the Employability Assessment to review navigational tools and to make students more comfortable in the testing lab
- Finally, review the blueprint and knowledge checksheets in totality before taking the post-test to ensure students are aware of the expectation

Using the above steps, you and your students should see improvement in the post-test assessment score report and a percentage of knowledge gained.

Offset Press Operations and Binding and Finishing Blueprint

The PrintED/SkillsUSA Offset Press Operations/Binding & Finishing competencies encompass the knowledge and skill set a student should master to exhibit proficiency in offset press operations/binding & finishing. The PrintED/SkillsUSA Offset Press Operations/Binding & Finishing Career Essentials Assessment test questions align with the PrintED/SkillsUSA Offset Press Operations/Binding & Finishing competencies.

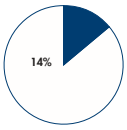
This Blueprint contains the subject matter content of this Career Essentials Assessment.

Note: To fully prepare for **Offset Press Operations and Binding and Finishing** SkillsUSA Championships contest, refer to the current year's SkillsUSA Championships Technical Standard, now included with your SkillsUSA Professional Membership. If you need help in accessing this benefit, contact the SkillsUSA Membership Office at 1-800-355-8422.

Standards and Competencies

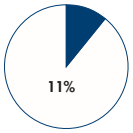
Competencies are weighted throughout the assessment. The percent shown is the weight of the competency. There are 50 questions per assessment.

Offset Press Technologies



- Review mechanical safety requirements when working with offset press equipment
- Describe a job jacket/ticket
- Identify the basic systems and parts of an offset press a. Feeder b. Printing unit c. Delivery
- Describe the paper path of a sheet fed offset press
- List common speeds maximum speeds (impressions per hour) of sheet fed presses and web fed presses
- Describe the paper path of a web (roll) fed offset press
- Compare the advantages and disadvantages of a web fed offset press versus a sheet fed offset press
- Describe perfecting and compare the features of a perfecting press versus non perfecting press
- Identify components of a printing unit by sketching an illustration
- Describe a single color offset press
- Describe a multi-color offset press
- Describe an offset lithographic plate and explain how it separates an image from a non-image area
- Describe the function of the blanket
- Describe the function of the impression cylinder
- Describe the operation of an offset printing press from feeding, through the printing unit, to delivery
- Rate the advantages and disadvantages of offset printing versus digital printing
- Compare the features and capabilities of offset presses offered by three manufacturers
- Describe how automation tools are being employed on an offset press

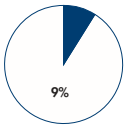
Paper



- Identify characteristics of paper a. Weight b. Finish c. Thickness d. Brightness e. Opacity f. Grain Direction
- Identify weight, coating and size from a label found on a ream, box, or skid of paper
- Determine grain direction of 5 different types of papers used in the offset printing process

- Describe how grain direction will affect the running of a press, folding, scoring and binding
- Describe wire versus felt side of paper
- Describe a watermark in paper
- Identify specialty substrates a. Carbonless b. Pressure Sensitive c. Gummed Label d. Plastic Based e. Metal
- Explain the importance of paper conditioning and describe potential problems that can be created by poor paper conditioning prior to running the press
- Describe workflow steps required in printing a process color job on coated versus uncoated paper

Ink

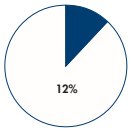


- Describe inks used with an offset press a. Oil-based b. Rubber-based c. Soy-based d. UV
- Describe the process (CMYK) and spot (PMS) color inks
- Identify process and spot color areas from selected sample print job
- Describe the procedure for mixing and testing custom colored inks
- Describe causes of ink problems and possible solutions
- Review solutions for common ink problems.
- Discuss coating a. Aqueous b. Ultraviolet Cured c. Varnish
- Describe the purpose and operation of a dampening system
- Demonstrate the proper mixing of dampening solution using appropriate ratios
- Describe and demonstrate the use of pH strips and conductivity meters to monitor dampening solution to maintain print quantity

Dampening Solution

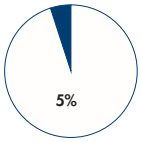
- Describe the components of dampening systems

Make-ready



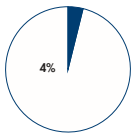
- Analyze a job ticket for printing instructions
- Describe a folding dummy
- Distinguish imposition of printing jobs a. Streetwise b. Work-and-turn c. Work-and-tumble
- Identify the marks on press sheet a. Registration b. Trim c. Bleed d. Fold
- Specify the steps required to execute make-ready for a printing job
- Describe the purpose of a gripper
- Describe the purpose of a side bar
- Describe types of blankets a. Compressible b. Conventional
- Describe cylinder to cylinder pressure measurements
- Describe packing sheets (Blanket and Plate)
- Demonstrate paper handling make-ready jobs
- Demonstrate mounting plate to plate cylinder
- Demonstrate inking system make-ready
- Demonstrate dampening system make-ready
- Demonstrate printing unit make-ready
- Estimate time and materials used during five make-ready jobs

Print



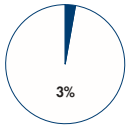
- ∞ Explain the operational procedures, controls, adjustments for each system (feeding, printing, delivery) on the press
- ∞ Describe the use of flags to signify waste sheets during a pressrun
- ∞ Print a single-color one-sided job
- ∞ Print a process color job on coated paper
- ∞ Explain the purpose of spray powder on an offset press
- ∞ Demonstrate wash-up techniques for the inking system (including a color wash), dampening system, and cylinders
- ∞ Describe the use of a press console

Quality



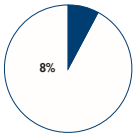
- ∞ Describe the use of color bars for quality control
- ∞ Describe the function of optical measurement tools used for quality control a. Densitometer b. Spectrophotometer
- ∞ Describe the importance of print industry specifications a. Web Offset Publications (SWOP) b. Specifications for Newsprint Advertising Production (SNAP) c. General Requirements for Applications of Commercial Offset Lithography (GrRACol)

Maintenance



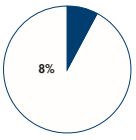
- ∞ Review the procedures for daily, weekly and monthly maintenance on a press

Math and Measurement



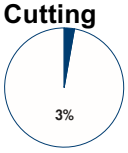
- ∞ Solve addition of fraction problems
- ∞ Solve subtraction of decimal problems – two and three digits
- ∞ Solve basic ratio and proportion problems
- ∞ Solve basic liquid measurement problems
- ∞ Convert English to Metric
- ∞ Estimate a small offset press job. Labor costs to include make-ready, running and clean up
- ∞ Estimate ink and paper costs on a common print job

Bindery and Finishing Technologies



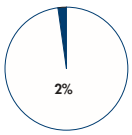
- ∞ Review the mechanical safety requirements when working with bindery and finishing equipment
- ∞ Summarize the finishing production information on a job jacket/ticket
- ∞ Demonstrate how to check the squareness of stock
- ∞ Demonstrate paper jogging techniques
- ∞ Demonstrate paper sheet counting techniques by a. Ream marker b. Weight c. Caliper
- ∞ Identify hand tools, equipment, and materials in bindery operations
- ∞ Identify in-line finishing systems operations
- ∞ Describe specialty finishing techniques a. Foil Stamping b. Embossing/Debossing c. Perforation d. Drilling/punching e. Scoring f. Die Cutting g. Coating h. Lamination
- ∞ Determine key activities within a binder operation in a commercial printing plant either on site or online via a virtual tour
- ∞ Determine the skills required to work in a bindery operation

Cutting



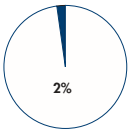
- Identify a guillotine cutter
- Calculate basic paper cuts from a parent sheet, considering job requirements and grain direction

Folding



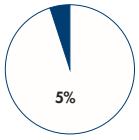
- Describe folding configurations a. Half fold b. Trifold c. Z fold d. Accordion fold e. Gate fold f. French fold
- Describe the uses and customer application of common fold
- Describe folding techniques a. Right angle folding b. Knife folding c. Buckle folding c. combination folding

Collation



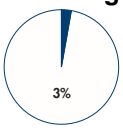
- Review the workflow steps used for collating sets of print

Binding



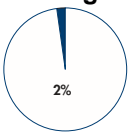
- Describe binding a. Side stitch b. Saddle stitch c. Perfect bind d. Coil bind e. Wire bound f. Comb binding g. Velo binding h. Padding
- Discuss reasons why customers choose different binding applications
- Identify spiral binding, perfect bind, and wire binding equipment
- Define crossover
- Define creep of pages when folding a signature

Trimming



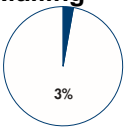
- Discuss type of project that requires trimming
- Explain the role of trimming to create a bleed effect

Packing



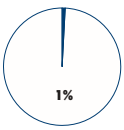
- Identify packaging and shrink wrap equipment and materials
- Summarize packaging information on job jacket/ticket

Mailing



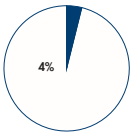
- Review USPS capabilities
- Review USPS postal regulations

Maintenance



- Determine when a blade needs to be changed on a paper cutter

Math and Measurement



- Solve subtraction of whole number problems – two and three digits
- Solve the multiplication of decimal problems – two and three digits
- Solve basis paper cutter calculations
- Estimate the cost of materials and production for performing three instructor-specified bindery operations

SkillsUSA *is of the understanding that students who take the PrintED/SkillsUSA Offset Press Operations, Binding and Finishing Career Essentials Assessment have been enrolled in a offset press operations, binding and finishing training program with the following competencies embedded within the curriculum.*

Identified Academic Skills

Math Skills
- Use fractions to solve practical problems
- Simplify numerical expressions
- Solve practical problems involving percents
- Solve single variable algebraic expressions

Language Arts Skills
- Provide information in conversations and in group discussions
- Provide information in oral presentations
- Demonstrate use of nonverbal communication skills: eye contact, posture and gestures using interviewing techniques to gain information
- Demonstrate knowledge of appropriate reference materials

Connections to National Standards

State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards
- Geometry
- Measurement
- Problem solving
- Communication
- Connections
- Representation

Source: NCTM Principles and Standards for School Mathematics. To view high school standards, visit: http://www.nctm.org/standards/content.aspx?id=16909. Select “Standards” from menu.

Science Standards
- Understands the structure and properties of matter
- Understands the sources and properties of energy
- Understands forces and motion
- Understands the nature of scientific inquiry

Source: McREL compendium of national science standards. To view and search the compendium, visit: www.mcrel.org/standards-benchmarks/.

Language Arts Standards
- Students read a wide range of print and nonprint texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

- Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, and graphics).
- Students adjust their use of spoken, written and visual language (e.g., conventions, style, and vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students use a variety of technological and information resources (e.g., libraries, databases, computer networks and video) to gather and synthesize information and to create and communicate knowledge.
- Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Source: http://www.ncte.org/standards/ncte-ira. To view the standards, visit: www.readwritethink.org/standards/index.html.

Review Dates:

Competency Area 1: Offset Press Operations, Binding and Finishing

Knowledge Check

How well do you know how to:		Very Well	Somewhat Well	Not Well
1.	Review mechanical safety requirements when working with Offset press equipment.	❒	❒	❒
2.	Describe a job jacket/ticket.	❒	❒	❒
3.	Identify the basic systems and parts of an offset press: a. Feeder b. Printing Unit c. Delivery	❒	❒	❒
4.	Describe the paper path of a sheet fed offset press.	❒	❒	❒
5.	List common speeds maximum speeds (impressions per hour) of sheet fed presses and web fed presses.	❒	❒	❒
6.	Describe the paper path of a web (roll) fed offset press.	❒	❒	❒
7.	Compare the advantages and disadvantages of a web fed offset press versus a sheet fed offset press.	❒	❒	❒
8.	Describe perfecting and compare the features of a perfecting press versus non perfecting press.	❒	❒	❒
9.	Identify components of a printing unit by sketching an illustration.	❒	❒	❒
10.	Describe a single color offset press.	❒	❒	❒
11.	Describe a multi-color offset press.	❒	❒	❒
12.	Describe an offset lithographic plate and explain how it separates an image from a non-image area.	❒	❒	❒
13.	Describe the function of the blanket.	❒	❒	❒

Review Dates:

Competency Area 1: Offset Press Operations, Binding and Finishing
(continued)

Knowledge Check

		Very Well	Somewhat Well	Not Well
14.	Describe the function of the impression cylinder.	❒	❒	❒
15.	Describe the operation of an offset printing press from feeding, through the printing unit, to delivery.	❒	❒	❒
16.	Rate the advantages and disadvantages of offset printing versus digital printing.	❒	❒	❒
17.	Compare the features and capabilities of offset presses offered by three manufacturers.	❒	❒	❒
18.	Describe how automation tools are being employed on an offset press.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 2: Paper

Knowledge Check

How wll Do you know how to:	Very Well	Somewhat Well	Not Well
1. Identify characteristics of paper: a. Weight b. Finish c. Thickness d. Brightness e. Opacity f. Grain Direction	❒	❒	❒
2. Identify weight, coating and size from a label found on a ream, box, or skid of paper.	❒	❒	❒
3. Determine grain direction of 5 different types of papers used in the offset print process.	❒	❒	❒
4. Describe how grain direction will affect the running of a press, folding, scoring and binding.	❒	❒	❒
5. Describe wire versus felt side of paper.	❒	❒	❒
6. Describe a watermark in paper.	❒	❒	❒
7. Identify specialty substrates: a. Carbonless b. Pressure Sensitive c. Gummed Label d. Plastic Based e. Metal	❒	❒	❒
8. Explain the importance of paper conditioning and describe potential problems that can be created by poor paper conditioning prior to running the press.	❒	❒	❒
9. Describe workflow steps required in printing a process color job on coated versus uncoated paper.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 3: Ink

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Describe inks used with an offset press: a. Oil-based b. Rubber-based c. Soy-based d. UV	❒	❒	❒
2. Describe the process (CMYK) and spot (PMS) color inks.	❒	❒	❒
3. Identify process and spot color areas from selected sample print job.	❒	❒	❒
4. Describe the procedure for missing and testing custom colored inks.	❒	❒	❒
5. Describe causes of ink problems and possible solutions.	❒	❒	❒
6. Review solutions for common ink problems.	❒	❒	❒
7. Discuss coating: a. Aqueous b. Ultraviolet Cured c. Varnish	❒	❒	❒
8. Describe the purpose and operation of a dampening system.	❒	❒	❒
9. Demonstrate the proper mixing of dampening solution using appropriate ratios.	❒	❒	❒
10. Describe and demonstrate the use of pH strips and conductivity meters to monitor dampening solution to maintain print quantity.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 4: Dampening Solution

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Describe the components of dampening systems.	❒	❒	❒

Areas I Need To Review:

Competency Area 5: Make - Ready

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Analyze a job ticket for printing instructions.	❒	❒	❒
2. Describe a folding dummy.	❒	❒	❒
3. Distinguish imposition of printing jobs: a. Registration b. Trim c. Bleed d. Fold	❒	❒	❒
4. Specify the steps required to execute make-ready for a printing job.	❒	❒	❒
5. Describe the purpose of a gripper.	❒	❒	❒
6. Describe the purpose of a side bar.	❒	❒	❒
7. Describe types of blankets: a. Compressible b. Conventional	❒	❒	❒
8. Describe cylinder to cylinder pressure measurements	❒	❒	❒
9. Describe packing sheets (Blanket and Plate).	❒	❒	❒
10. Demonstrate paper handling make-ready jobs.	❒	❒	❒

Review Dates:

Competency Area 5: Make - Ready
(continued)

Knowledge Check

		Very Well	Somewhat Well	Not Well
11.	Demonstrate inking system make-ready.	❒	❒	❒
12.	Demonstrate dampening system make-ready.	❒	❒	❒
13.	Demonstrate printing unit make-ready.	❒	❒	❒
14.	Estimate time and materials used during five make-ready jobs.	❒	❒	❒

Areas I Need To Review:

Competency Area 6: Print
Knowledge Check

How well do you know how to:		Very Well	Somewhat Well	Not Well
1.	Explain the operational procedures, controls, adjustments for each system (feeding, printing, delivery) on the press.	❒	❒	❒
2.	Describe the use of flags to signify waste sheets during a press run.	❒	❒	❒
3.	Print a single-color one-sided job.	❒	❒	❒
4.	Print a process color job on coated paper.	❒	❒	❒
5.	Explain the purpose of spray powder on an offset press.	❒	❒	❒
6.	Demonstrate wash-up techniques for the inking system (including a color wash), dampening system, and cylinders.	❒	❒	❒
7.	Describe the use of a press console.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 7: Quality

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Describe the use of color bars for quality control.	❒	❒	❒
2. Describe the function of optical measurement tools used for quality control: a. Densitometer b. Spectrophotometer	❒	❒	❒
3. Describe the importance of print industry specifications: a. Web Offset Publications (SWOP) b. Specifications for Newsprint Advertising Production (SNAP) c. General Requirements for Application of Commercial Offset Lithography (GrRACol)	❒	❒	❒

Areas I Need To Review:

Competency Area 8: Maintenance
Knowledge Check

How well do you know how to:			
1. Review the procedures for daily, weekly and monthly maintenance on a press.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 9: Math and Measurement

Knowledge Check

How well do you know how to:		Very Well	Somewhat Well	Not Well
1.	Solve addition of fraction problems.	❒	❒	❒
2.	Solve subtraction of decimal problems – two and three digits.	❒	❒	❒
3.	Solve basic ratio and proportion problems.	❒	❒	❒
4.	Solve basic liquid measurement problems.	❒	❒	❒
5.	Convert English to Metric.	❒	❒	❒
6.	Estimate a small offset press job. Labor costs to include make-ready, running and clean-up.	❒	❒	❒
7.	Estimate ink and paper costs on a common print job.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 10: Bindery and Finishing Technologies

Knowledge Check

How well do you know how to:		Very Well	Somewhat Well	Not Well
1.	Review the mechanical safety requirements when working with bindery and finishing equipment.	❒	❒	❒
2.	Summarize the finishing production information on a job jacket/ticket.	❒	❒	❒
3.	Demonstrate how to check the squareness of stock.	❒	❒	❒
4.	Demonstrate the paper jogging techniques.	❒	❒	❒
5.	Demonstrate paper sheet counting techniques by: a. Ream marker b. Weight c. Caliper	❒	❒	❒
6.	Identify hand tools, equipment, and materials in bindery operations.	❒	❒	❒
7.	Describe specialty finishing techniques: a. Foil Stamping b. Embossing/Debossing c. Perforation d. Drilling/Punching e. Scoring f. Die Cutting g. Coating h. Lamination	❒	❒	❒
8.	Determine key activities within a binder operation in a commercial printing plant either on site or online via a virtual tour.	❒	❒	❒
9.	Determine the skills required to work in a bindery operation.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 11: Cutting

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Identify a guillotine cutter.	❒	❒	❒
2. Calculate basic paper cuts from a parent sheet, considering job requirements and grain direction	❒	❒	❒

Areas I Need To Review:

Competency Area 12: Folding

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Decribe folding configurations: a. Half Fold b. Tri Fold c. Z Fold d. Accordion Fold e. Gate Fold f. French Fold	❒	❒	❒
2. Describe the uses and customer application of common fold.	❒	❒	❒
3. Describe folding techniques: a. Right Angle Folding b. Knife Folding c. Buckle Folding d. Combination Folding	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 13: Collation

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Review the workflow steps used for collating sets of print.	❒	❒	❒

Areas I Need To Review:

Competency Area 14: Binding

Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Describe binding: a. Side Stitch b. Saddle Stitch c. Perfect Bind d. Coil Bind e. Wire Bound f. Comb Binding g. Velo Binding h. Padding	❒	❒	❒
2. Discuss reasons why customers choose different binding applications.	❒	❒	❒
3. Identify spiral binding, perfect bind, and wire binding equipment.	❒	❒	❒
4. Define crossover.	❒	❒	❒
5. Define creep of pages when folding a signature.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 15: Trimming
Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Discuss type of project that requires trimming.	❒	❒	❒
2. Explain the role of trimming to create a bleed effect.	❒	❒	❒

Areas I Need To Review:

Competency Area 16 & 17: Packing & Mailing
Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Identify packaging and shrink wrap equipment and materials.	❒	❒	❒
2. Summarize packaging information on job jacket/ticket.	❒	❒	❒
3. Review USPS capabilities.	❒	❒	❒
4,. Review USPS postal regulations.	❒	❒	❒

Areas I Need To Review:

Review Dates:

Competency Area 18: Maintenance
Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Determine when a blade needs to be changed on a paper cutter.	❒	❒	❒

Areas I Need To Review:

Competency Area 19: Math & Measurment
Knowledge Check

How well do you know how to:	Very Well	Somewhat Well	Not Well
1. Solve subtraction of whole number problems – two and three digits.	❒	❒	❒
2. Solve the multiplication of decimal problems – two and three digits.	❒	❒	❒
3. Solve basis paper cutter calculations.	❒	❒	❒
4. Estimate the cost of materials and production for performing three instructor-specified bindery operations	❒	❒	❒

Areas I Need To Review:

Helpful Tips and Reminders for Students

Access Directions to the Trade- or Technical-Specific Online 10-question Demo Assessment

Access the Web link *www.careeressentials.org/assessments/demo-our-assessments* with your browser. The sample programmatic questions will help give you an idea of the types of questions on the assessment and how they are generally written.

Test-Taking Reminders

Implementing good study habits is essential for any test or class. Below are basic reminders to better prepare you for life-long learning and workplace success. Incorporate these strategies into your everyday habits.

- Develop a regular study schedule
- Identify a specific location to study
- Always take notes while studying in class or on your own
- Take short breaks during your study session
- Perform "mini-testing" to make sure you understand and comprehend the program concepts
- Join small study groups to help focus on the program content
- If you need special assistance in testing, tell your teacher or counselor so he or she can make accommodations

Student Testing Tips

The most important tip for you is to be prepared mentally and physically for the testing session. Make sure to get plenty of rest and eat healthy. Wear comfortable and appropriate clothing to the testing session. Find out if you can bring items to the testing session, such as a non-programmable calculator, and make sure you have the items ready the night before. Check the website at *www.careeressentials.org/wp-content/uploads/2017/07/Permitted-Testing-Tools-Aids.pdf* for permitted tools or job aids that can be used during testing. The more organized you are before the testing period, the more relaxed you will be during the actual testing session.

Be relaxed and positive. If you begin to panic during the testing, take some deep breaths to relax, and think positive thoughts.

Do not rush through the questions. Read the question and potential answers thoroughly. Make sure you know exactly what the question is asking before answering. If you are unsure, note the question and return to it. Use process of elimination. If you are not sure of the correct answer, study the potential answers and eliminate the ones that you know are not correct.

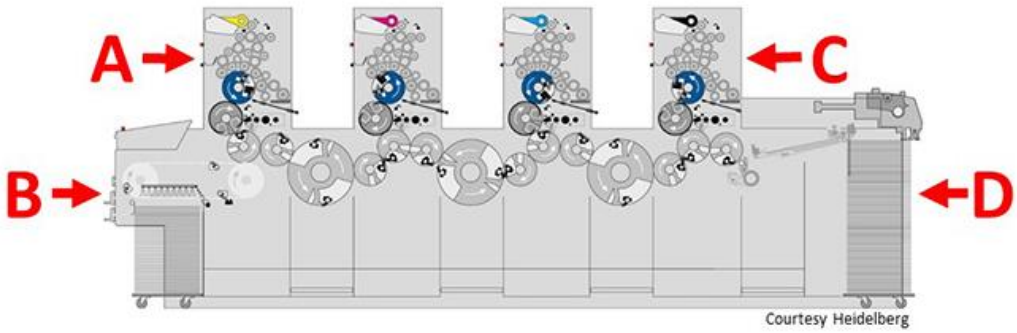
If all else fails – *guess*. After you have exhausted all options, take your best guess at the correct answer. If you have studied the content area, you may intuitively know the correct answer. The Career Essentials: Assessments does not penalize you for guessing, and you may guess correctly!

Sample Assessment Questions

Questions for Offset Press / Bindery Demonstration Quesitons

Question 1

Identify the location of this offset press' delivery pile?



Choose one answer

A.
B.
C.
D.

Correct Answer: B

Question 2

Why is the maximum printing area of a sheetfed press smaller than its maximum sheet size?

Choose one answer

A. Paper will shrink as it passes through the printing units
B. Allowance must be made for the gripper area
C. Plate size is always smaller than the sheet size
D. Blanket is always smaller than the sheet size

Correct Answer: B

Question 3

Which image shows a gummed label?

A 

B 

C 

D 

Choose one answer

A.
B.
C.
D.

Correct Answer: A

Question 4

What device is used to cure UV ink?

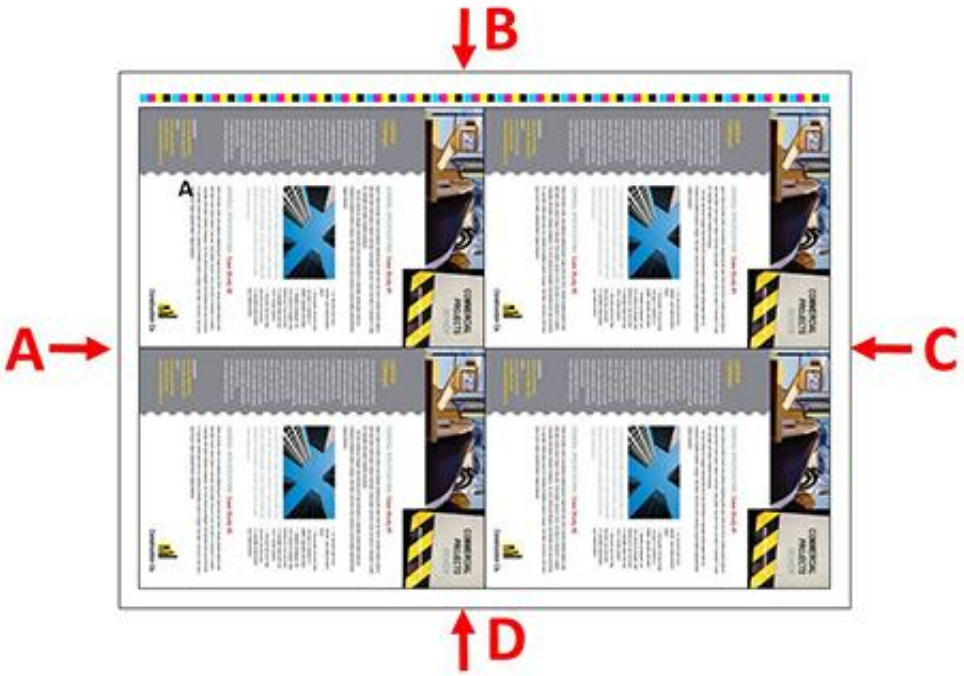
Choose one answer

A. Delivery stacker
B. Ultra-violet lamps
C. X-Ray lamp
D. Blue light laser

Correct Answer: B

Question 5

Identify the correct location of this press sheet's gripper margin:



Choose one answer

A. Left side of sheet
B. Trailing edge of sheet
C. Right side of sheet
D. Leading edge of sheet

Correct Answer: D

Question 6

Your company's press is known to print 6,000 pages of solid coverage per pound of black ink. Using the chart to calculate ink consumption for a print job featuring normal composition with bold paragraph heads, which answer identifies the amount of ink required to print 45,000 pages if spoilage is zero?

Offset Ink Coverage Chart

Type of Form	Percent of Coverage
Very light composition, no halftones	10%
Normal composition, no halftones	15%
Normal composition, bold paragraph heads	20%
Medium composition, no halftones	30%
Heavy composition, no halftones	45%
Halftones	45%
Solids	100%

Choose one answer

A. 0.5 pounds of ink
B. 1.0 pounds of ink
C. 1.5 pounds of ink
D. 2.0 pounds of ink

Correct Answer: C

Question 7

Finishing operations may be performed by detachable units that attach to or follow the media path of a printing press. This process is called:

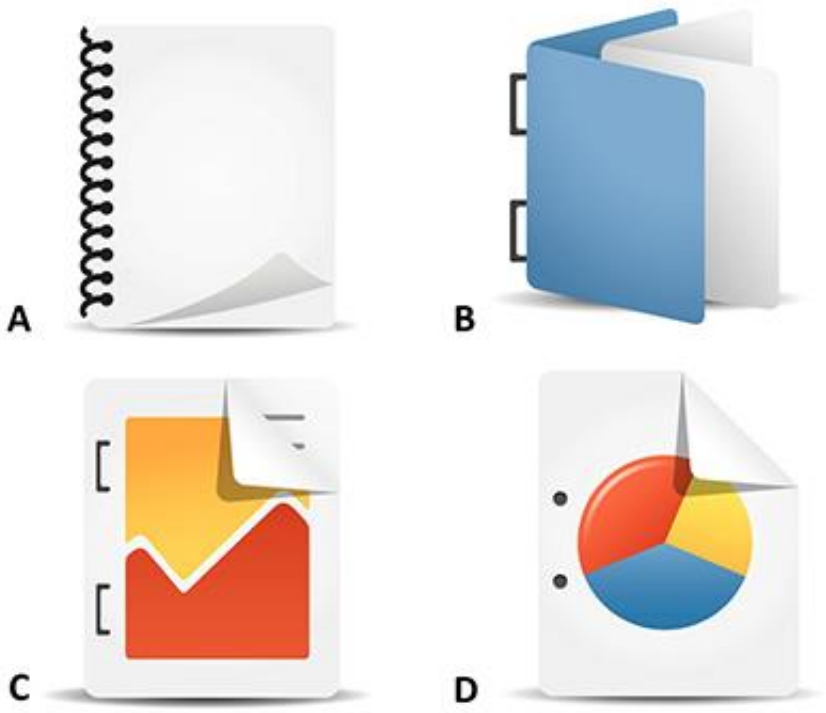
Choose one answer

A. Edition finishing
B. Off-line finishing
C. In-line finishing
D. Trade finishing

Correct Answer: C

Question 8

Which graphic correctly depicts a side-stitched document?



Choose one answer

A.
B.
C.
D.

Correct Answer: C

Question 9

Which option correctly identifies the purpose of a folding dummy?

Choose one answer

A. Determine the amount of paper that is required
B. Calculate the final cost of the printed job
C. Determine caliper of the paper
D. Determine page imposition for press sheets

Correct Answer: D

Question 10

Which imposition style uses the same plate to print both sides of a sheet by switching gripper edges?

Choose one answer

A. Work and tumble
B. Sheetwise
C. Two-out flipped
D. Work and turn

Correct Answer: A

Resources

Additional Resources
Below are resources that will be helpful in preparing for the Assessments which were created based on industry standards nationwide. Use the Career Essentials: Assessments Blueprint as a guideline for competencies tested. Use the resources below to find curriculum or additional study guides for industry standards.

Offset Press Operations, Binding and Finishing Resources:
www.careeressentials.org/assessments/assessment-resources