

Lesson S1a

ON THE JOB: PROVE THE PROFESSION (Group & Justify Activity)

SCIENCE TEKS OBJECTIVES	
§112.18	6.2, 7.2, 8.2 (E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends. 6.3, 7.3, 8.3 Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions. The student is expected to: (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student.

CAREER EXPLORATION AND PORTALS TEKS OBJECTIVES	
§127.3 c	4. The student evaluates skills for personal success. The student is expected to: (C) use a problem-solving model and critical-thinking skills to make informed decisions; and (F) identify skills that can be transferable among a variety of careers. 8. The student identifies and explores technical skills essential to careers in multiple occupations, including those that are high skill, high wage, or high demand. The student is expected to: (B) analyze the relationship between various occupations such as the relationship between interior design, architectural design, manufacturing, and construction on the industry of home building or the multiple occupations required for hospital administration.
§127.4 c	1. The student explores one or more career clusters of interest. The student is expected to: (A) identify the various career opportunities within one or more career clusters;

Instructional Directions This activity is designed to take 15 – 25 minutes as presented below.

1. The teacher should distribute the cards, **Blackline Master S1a.1**, to students individually or in groups.
2. Students review pictures of people working and find common characteristics to formulate relationships.
3. Arrange pictures into groups based on the identified relationships.
4. Students must justify to others (peers and/or instructor) the groups made.
5. The teacher may elect to use **Blackline Master S1a.2** to collect responses.

Learning Outcome(s) The students will be able to justify his/her decisions based on observations, inferences and schema. There are no “right or wrong” answers if quality justification can be made.

Related Industries/Occupations Teacher, Postsecondary Teacher, Counselor, Pharmacist, Welder, Electrician, Network & Computer Systems Administrator, Engineer, Industrial Machinery Mechanic, Machinist, Service Unit Operator, Geoscientist, Registered Nurse, Licensed Vocational Nurse, Radiologic Technologist, Physical Therapist, Computer Systems Analyst, Systems Software Developer, Plumber and Paralegal.

Deliverables Peer review or teacher review of groupings. Oral justifications of groupings.

Resources Needed **Blackline Master S1a.1**

Note: While this is designed to achieve Science TEKS objectives, this activity could be completed in any subject matter classroom in the intermediate school level.

**Vocabulary or Concepts
(New and/or Challenging)**

- Relationships
- Attributes
- Classification
- Rationalize/rationalization
- Justify/justification



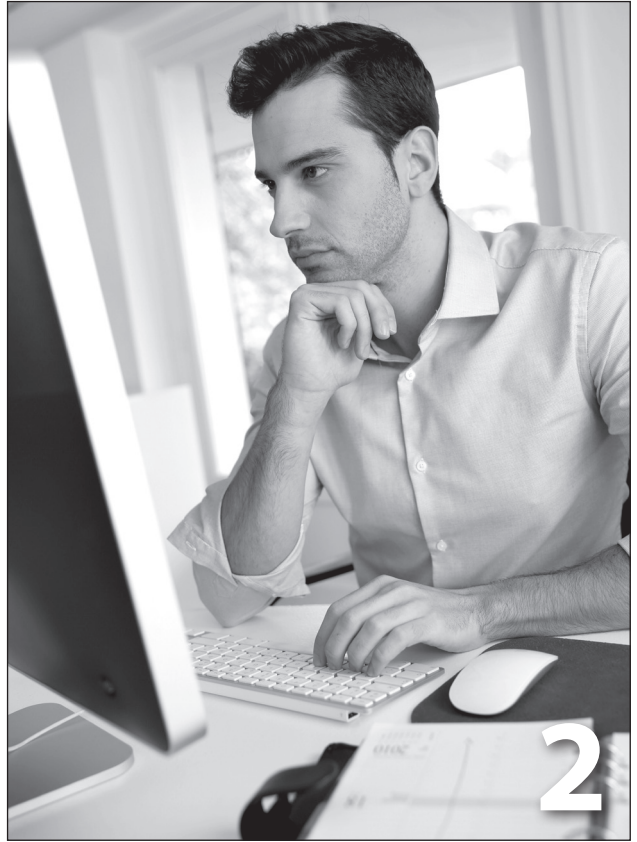
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MODIFICATIONS & EXTENSIONS

- As time allows, a variation on this activity would allow students to make as many groupings as possible within an allotted amount of time (no more than five minutes is recommended). Students would then compare groups and would cross off any groups that are similar to those discovered by other students. The student/group with the most unique groupings “wins.”
- Have students take or collect pictures of professions in action, including people, tools, products, and services from each profession. Have them present as a poster board or online project board presentation of their classifications.
- After student observes pictures, conduct a teacher-led discussion to find common features seen in pictures.
- Give students group names for career clusters and have them put pictures in the given categories.
- Students can put pictures into sub-groups within the categories that they have made.
- Students can hypothesize careers/ industries represented – with answers on the back of pictures.
- Students can hypothesize careers/ industries represented – with no answers on the back of pictures.
- Students can hypothesize/discuss/ research the type of education required for this profession.
- Students can reference Focus On profiles (wrksolutions.com/jobs/focuson.html) or High-Skill, High-Growth Jobs List (wrksolutions.com/jobs/doc/WFS-HSHG.pdf) to initiate research.





COMPUTER SYSTEMS ANALYSTS

Computer systems analysts solve computer problems and apply computer technology to meet the needs of an organization. They analyze user requirements, procedures, and problems to automate or improve existing systems, and review computer systems capabilities, workflow, and scheduling limitations.

Median Hourly Wage:	\$40.12
Jobs in 2010:	11,020
Estimated Jobs in 2020:	13,520
Employment Growth:	22.7%
Annual Average Job Openings:	455
Minimum Education:	Bachelor's degree

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PRIMARY, SECONDARY, & SPECIAL EDUCATION SCHOOL TEACHERS

Teachers who work in the public school education system teach grades kindergarten through 12. Some teachers can work in private or charter schools, which may serve special needs or gifted children.

SUBSET: BILINGUAL EDUCATION, SPECIAL EDUCATION, SECONDARY SCIENCE AND MATH TEACHER

Median Hourly Wage:	N/A
Jobs in 2010:	103,760
Estimated Jobs in 2020:	152,220
Employment Growth:	46.7%
Annual Average Job Openings:	7,365
Minimum Education:	Bachelor's degree

1

PHARMACISTS

Pharmacists count pills, fill prescriptions and provide proper selection and dosage of medications, interactions, and side effects of medications.

Median Hourly Wage:	\$53.15
Jobs in 2010:	5,130
Estimated Jobs in 2020:	6,560
Employment Growth:	27.9%
Annual Average Job Openings:	275
Minimum Education:	Master's degree & license

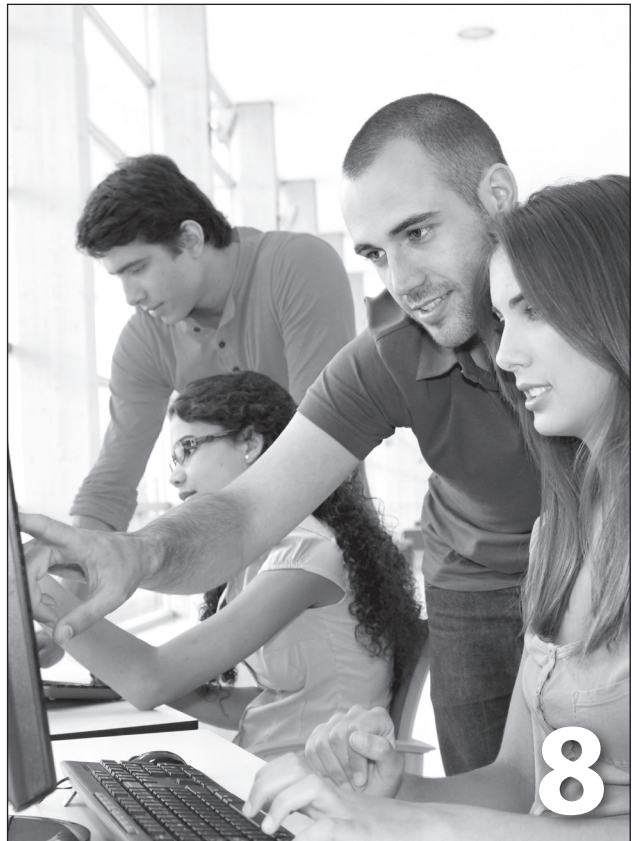
4

INDUSTRIAL MACHINERY MECHANICS

Industrial mechanics perform a wide variety of duties, such as preventive maintenance, detecting breakdown conditions before they happen, making machinery adjustments, and repairing equipment using blueprints, sketches, diagrams, and a variety of tools.

Median Hourly Wage:	\$23.23
Jobs in 2010:	11,630
Estimated Jobs in 2020:	16,460
Employment Growth:	41.5%
Annual Average Job Openings:	710
Minimum Education:	Long-term on-the-job training

3



ELECTRICIANS

Electricians are in short supply and demand continues to grow in response to an ever-increasing population and as a growing number of baby boomers retire. The shortage of electricians translates into outstanding career opportunities to individuals entering into the workforce.

Median Hourly Wage:	\$21.43
Jobs in 2010:	14,030
Estimated Jobs in 2020:	16,790
Employment Growth:	19.7%
Annual Average Job Openings:	655
Minimum Education:	Long-term on-the-job training

6

REGISTERED NURSES

A registered nurse (RN) is a nurse who has graduated from a nursing program at a university or college and has passed a national licensing exam. A registered nurse helps individuals, families, and groups to achieve health and prevent disease.

Median Hourly Wage:	\$34.43
Jobs in 2010:	43,870
Estimated Jobs in 2020:	60,620
Employment Growth:	38.2%
Annual Average Job Openings:	2,470
Minimum Education:	Bachelor's degree preferred

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SOFTWARE DEVELOPERS, SYSTEMS SOFTWARE

Software developers, systems software, coordinate the construction, maintenance, and expansion of an organization's computer system.

Median Hourly Wage:	\$42.93
Jobs in 2010:	8,220
Estimated Jobs in 2020:	10,770
Employment Growth:	31.0%
Annual Average Job Openings:	340
Minimum Education:	Bachelor's degree

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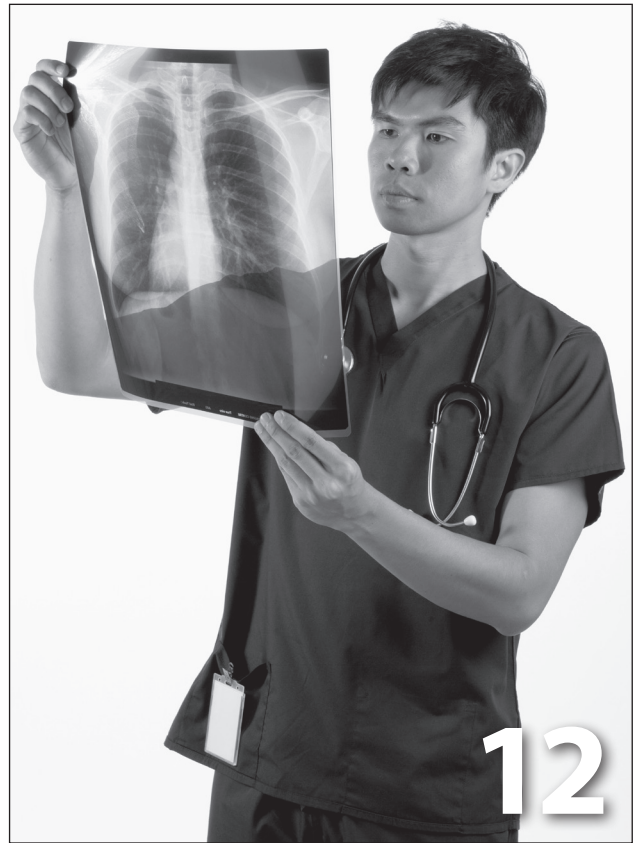
ENGINEERS

Engineers design, develop, test, or supervise manufacturing projects and work in the chemical, civil, computer hardware, electrical, electronic, industrial, mechanical, petroleum, and other industries.

SUBSET: ENVIRONMENTAL ENGINEER, PETROLEUM ENGINEERS, MINING AND GEOLOGICAL ENGINEERS

Median Hourly Wage:	N/A
Jobs in 2010:	47,870
Estimated Jobs in 2020:	58,880
Employment Growth:	23.0%
Annual Average Job Openings:	2,245
Minimum Education:	Bachelor's degree

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GEOSCIENTISTS, EX. HYDROLOGISTS & GEOGRAPHERS

Geoscientists study the composition, structure, and other physical aspects of the earth for the purpose of oil and gas exploration. Some find additional opportunities in education, mining, government, and the environmental industry.

Median Hourly Wage:	\$61.63
Jobs in 2010:	4,670
Estimated Jobs in 2020:	6,370
Employment Growth:	36.4%
Annual Average Job Openings:	310
Minimum Education:	Bachelor's degree

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WELDERS, CUTTERS, SOLDERERS, & BRAZERS

Welders, cutters, solderers, and brazers can use their skills to pursue careers in high-demand occupations such as: welder-pipefitter and other pipe trades, structural welder, welder-fitter, maintenance mechanics, scaffold builders, and millwrights.

Median Hourly Wage:	\$17.93
Jobs in 2010:	15,510
Estimated Jobs in 2020:	19,650
Employment Growth:	26.7%
Annual Average Job Openings:	830
Minimum Education:	Postsecondary vocational training

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RADIOLOGIC TECHNOLOGISTS & TECHNICIANS

Radiologic technologists perform imaging tests to assist in diagnosing patients. Some radiologic technologists specialize in computerized tomography (CT) and magnetic resonance imaging (MRI).

Median Hourly Wage:	\$26.27
Jobs in 2010:	3,760
Estimated Jobs in 2020:	5,300
Employment Growth:	41.0%
Annual Average Job Openings:	215
Minimum Education:	Associate's degree

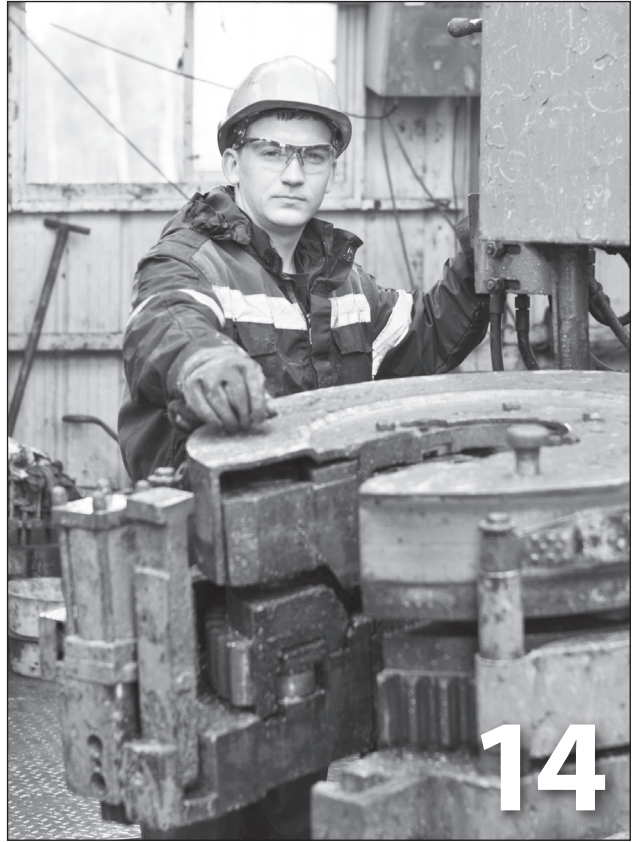
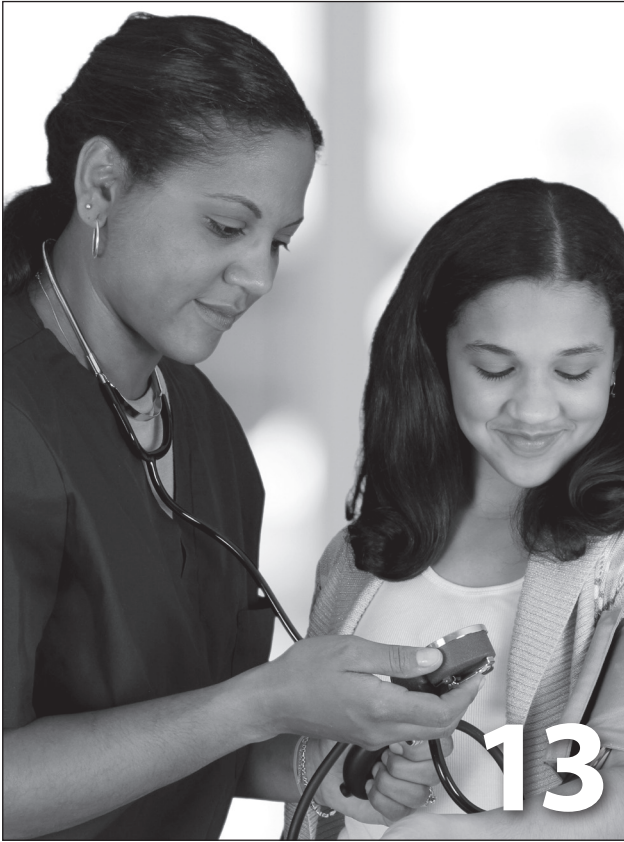
12

MACHINISTS

Machinists are highly-skilled manufacturing workers. They use power-operated tools to produce precision metal or plastic parts.

Median Hourly Wage:	\$18.95
Jobs in 2010:	11,850
Estimated Jobs in 2020:	14,850
Employment Growth:	25.3%
Annual Average Job Openings:	520
Minimum Education:	Long-term on-the-job training

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SERVICE UNIT OPERATORS, OIL, GAS, & MINING

A service unit operator's responsibility is to maintain or increase oil/gas flow from producing wells.

Median Hourly Wage:	\$18.58
Jobs in 2010:	6,570
Estimated Jobs in 2020:	8,930
Employment Growth:	35.9%
Annual Average Job Openings:	375
Minimum Education:	Moderate-term on-the-job training

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LICENSED PRACTICAL & LICENSED VOCATIONAL NURSES

Licensed vocational nurses (LVNs), referred to as licensed practical nurses in some other states, care for the sick, injured, convalescent, and disabled under the direction of physicians and registered nurses.

Median Hourly Wage:	\$21.28
Jobs in 2010:	14,600
Estimated Jobs in 2020:	18,920
Employment Growth:	29.6%
Annual Average Job Openings:	820
Minimum Education:	Postsecondary vocational training

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PLUMBERS, PIPEFITTERS, & STEAMFITTERS

Plumbers, pipefitters, and steamfitters are among the largest and highest-paid construction occupations. Plumbers, pipefitters, and steamfitters install, maintain, and repair many different types of pipe systems that carry water, steam, air, or other liquids or gases.

Median Hourly Wage:	\$23.60
Jobs in 2010:	10,420
Estimated Jobs in 2020:	12,610
Employment Growth:	21.0%
Annual Average Job Openings:	520
Minimum Education:	Long-term on-the-job training

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POSTSECONDARY TEACHERS

Postsecondary teachers instruct students in a wide range of subjects after high school. In addition, many do research in their area of specialization.

SUBSET: NURSING INSTRUCTORS AND TEACHERS, POSTSECONDARY

Median Hourly Wage:	N/A
Jobs in 2010:	30,410
Estimated Jobs in 2020:	37,350
Employment Growth:	22.8%
Annual Average Job Openings:	1,180
Minimum Education:	Master's/Doctoral degree

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PHYSICAL THERAPISTS

Physical therapy is the method of treatment that varies case by case and can be anything from therapeutic exercise and functional training to the use of adaptive devices and equipment or even various forms of electrotherapy.

Median Hourly Wage:	\$39.38
Jobs in 2010:	2,960
Estimated Jobs in 2020:	4,030
Employment Growth:	36.1%
Annual Average Job Openings:	140
Minimum Education:	Bachelor's degree & license

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PARALEGALS & LEGAL ASSISTANTS

Paralegals, also referred to as legal assistants, assist lawyers by researching legal precedent, investigating facts, or preparing legal documents.

Median Hourly Wage:	\$23.86
Jobs in 2010:	4,730
Estimated Jobs in 2020:	6,280
Employment Growth:	32.8%
Annual Average Job Openings:	220
Minimum Education:	Associate's degree

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EDUCATIONAL, VOCATIONAL, & SCHOOL COUNSELORS

Counselors cover a wide scope of activities for students ranging from encouragement of academics, career and personal/social development, to helping students maximize their academic achievements.

Median Hourly Wage:	\$27.93
Jobs in 2010:	6,250
Estimated Jobs in 2020:	8,540
Employment Growth:	36.6%
Annual Average Job Openings:	365
Minimum Education:	Bachelor's degree

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NETWORK & COMPUTER SYSTEMS ADMINISTRATORS

Network and computer systems administrators are professionals that analyze, design and test local area networks (LAN), wide area networks (WAN), Internet, intranet, and other data communications systems.

Median Hourly Wage:	\$34.43
Jobs in 2010:	6,720
Estimated Jobs in 2020:	8,910
Employment Growth:	32.6%
Annual Average Job Openings:	335
Minimum Education:	Bachelor's degree

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Name _____

Period _____

Date _____

ON THE JOB: PROVE THE PROFESSION

(Group & Justify Activity)

Review the pictures of people working and find common characteristics to formulate relationships. Arrange pictures into groups based on the identified relationships. You must justify your decisions based on observations, inferences and schema. There are no “right or wrong” answers if quality justification can be made. Make any notes below that may help you justify or prove your answers.

Name of group	Cards in group	Reason for grouping
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Lesson S1b

ON THE JOB: SOUNDS OF THE WORK WORLD (Name that Sound)

SCIENCE TEKS OBJECTIVES	
§112.18	<p>6.2, 7.2, 8.2 Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</p> <p>(B) design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;</p> <p>(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;</p> <p>6.3, 7.3, 8.3 Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem-solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to: (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student.</p>

CAREER EXPLORATION AND PORTALS TEKS OBJECTIVES	
§127.3 c	<p>2. The student analyzes personal interests and aptitudes regarding education and career planning. The student is expected to: (D) determine the impact of technology on careers of personal interest.</p> <p>4. The student evaluates skills for personal success. The student is expected to: (C) use a problem-solving model and critical-thinking skills to make informed decisions.</p> <p>8. The student identifies and explores technical skills essential to careers in multiple occupations, including those that are high skill, high wage, or high demand. The student is expected to: (A) complete actual or virtual labs to simulate the technical skills required in various occupations.</p>

Instructional Directions This activity is designed to take 30–45 minutes as presented below.

1. Set up sounds with appropriate volume for each student to hear sound clips of the 10 Workforce Solutions high-skill, high-growth jobs provided. (this could be one source to listen to as a class or an individual device that students could listen to with earphones).
2. Provide chart for students to first record the hypothesis of the sounds they hear from the recording. Guiding questions: What do you think makes this sound? What type of job might have this sound in its environment? Encourage students to record observations that inform their research in the notes box on their worksheets.
3. Give students copies of the Workforce Solutions High-Skill, High-Growth Jobs List and have the students hypothesize what job is associated with each sound. Play sounds again at your discretion.
4. Reviewing answers as a group or class will give students an opportunity to justify their thoughts. Students could compare answers with a partner before the classwide discussion.

Learning Outcome(s) The students will use observation skills to record hypotheses of sounds heard and then hypothesize about the type of job where that sound may be heard. Students will understand that observations are not just by sight.

Related Industries/Occupations These 10 jobs have been selected:

- Plumber (flushing toilet)
- Mobile Heavy Equipment Mechanic/Operator (large machine/truck moving)
- Geoscientist (rocks being manipulated/crushed)
- Electrical Power Line Installer/Repairer (buzzing electrical lines)
- Registered Nurse (heart monitor)
- Dentist (tooth drilling)



ON THE JOB: SOUNDS OF THE WORK WORLD

(Name that Sound)

- Pharmacist (pills being manipulated)
- Radiologic Technologist (x-ray or MRI machine)
- Respiratory Therapist (breathing)
- Accountant (calculations on a keyboard/calculator)

Deliverables Completed Blackline Master S1b

- Resources Needed**
- Sound clips of the jobs listed above:
wrksolutions.com/whenigrowup/ms/sounds/sounds.zip
 - Device to project sound
 - Blackline Master S1b
 - Workforce Solutions High-Skill, High-Growth Jobs List

- Vocabulary or Concepts**
(New and/or Challenging)
- Observations
 - Quantitative observations
 - Qualitative observations
 - Auditory

MODIFICATIONS & EXTENSIONS

- Students hypothesize smells that could be associated with each job above or others.
- Students hypothesize on sounds aloud. Pictures of each job could be associated with each job. Match the sound to the picture. (see Blackline Masters for lessons S1a and S1d)
- Students make recordings of their own world to share and have others hypothesize.
- **Simplify:** Students are given a list of the sounds and they choose which sound they hear after listening to each clip.
- **Simplify:** Students hypothesize the sounds but are given a list of jobs associated with the sounds and they match the sound to the job.



Name _____

Period _____

Date _____

ON THE JOB: SOUNDS OF THE WORK WORLD

(Name that Sound)

Hypothesize about the sounds you observe as you listen to audio clips from the world of our region's workplaces. Then look at the High-Skill, High-Growth Jobs List and hypothesize the job that could be associated with that sound. Make any notes that may help you justify or prove your answers.

Description of sound	Jobs that might create that sound	Notes
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

List of jobs that could create the sounds you have heard:

- Plumber
- Mobile Heavy Equipment Mechanic/Operator
- Geologist
- Electrical Power Line Installer/Repairer
- Registered Nurse
- Dentist
- Pharmacist
- Radiologic Technologist
- Respiratory Therapist
- Accountant

Lesson S1c

ON THE JOB: PROFESSION PHOTO PUZZLE HUNT (Identify the Differences)

SCIENCE TEKS OBJECTIVES	
§112.18	<p>6.2, 7.2, 8.2 Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to: Plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;</p> <p>Design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;</p> <p>Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers.</p> <p>6.3, 7.3, 8.3 Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem-solving to make informed decisions and knows the contributions of relevant scientists.</p> <p>The student is expected to: (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student.</p>

CAREER EXPLORATION AND PORTALS TEKS OBJECTIVES	
§127.3 c	<p>4. The student evaluates skills for personal success. The student is expected to: (C) use a problem-solving model and critical-thinking skills to make informed decisions.</p> <p>8. The student identifies and explores technical skills essential to careers in multiple occupations, including those that are high skill, high wage, or high demand. The student is expected to: (A) complete actual or virtual labs to simulate the technical skills required in various occupation.</p>

Instructional Directions

This activity is designed to take 5–50 minutes based on chosen content, modifications or extensions

Each picture has two “versions.” By using keen observations skills, students can find as many differences between the pictures as possible. Differences can be recorded on **Blackline Master S1c**.

Learning Outcome(s)

Students will use acute visual discrepancy skills to analyze the differences between two versions of the same photograph depicting Workforce Solutions high-skill, high-growth jobs.

Related Industries/Occupations

Specialty Construction Industry

Deliverables

Completed Worksheet with differences between each picture listed.

Resources Needed

- Blackline Master S1c
- IDEAL: An additional digital photograph for the extension activity.

Vocabulary or Concepts (New and/or Challenging)

- observe
- observation skills
- visual acuity
- minute (as in small)
- analyze/analysis

MODIFICATIONS & EXTENSIONS

- Students with access to computer programs for altering photos could change a photograph then share for other students to observe and analyze. Consider having students add original & modified photos to a teacher-monitored photo-sharing Internet site (such as Flickr or Photobucket) or a social media app (such as Instagram)
- **Simplify:** This lesson could be done orally without any writing at all – answers could be discussed orally. Project image for the class to view as a whole or pass out into small groups. It could be used as a warm up to get students focused. This could also be used during short class period schedules when a “scientific” activity is needed but there is not adequate time for a lab or full lesson.



Name _____

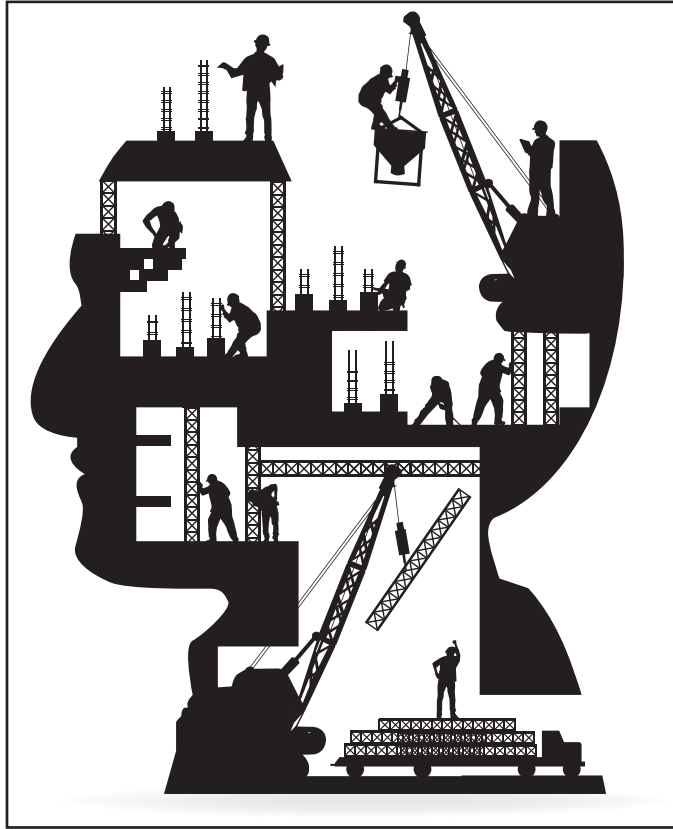
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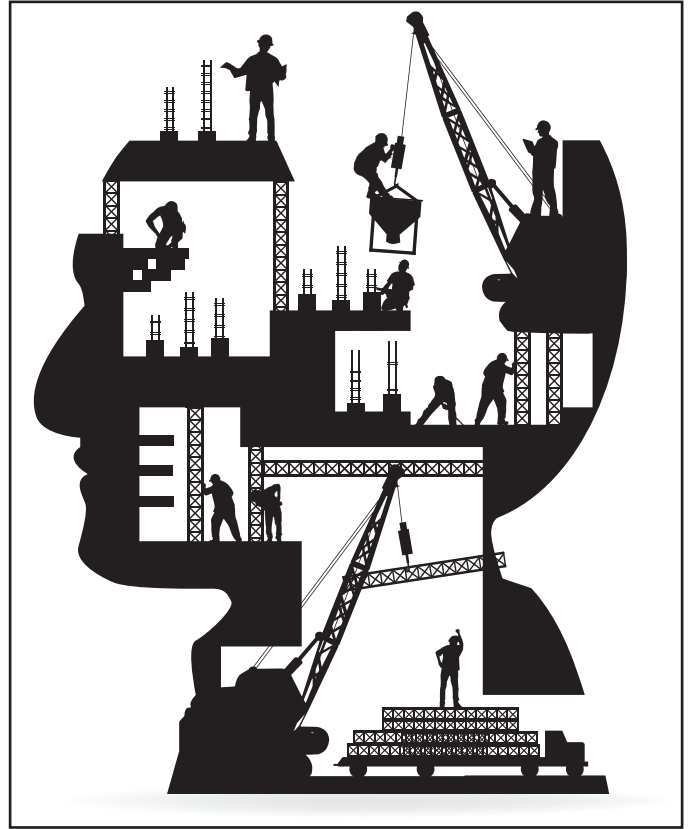
ON THE JOB: PHOTO PUZZLE HUNT

Individually or with your partner, find the differences between Pictures A and B. Be as descriptive as possible when describing the difference that Picture B has from Picture A.

A



B



Differences between picture A & B:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

ON THE JOB: TOOLS OF THE TRADE (Mix, Match & Mingle)

SCIENCE TEKS OBJECTIVES	
§112.18	<p>6.4, 7.4, 8.4 Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:</p> <p>(A) use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrometers, timing devices, and other equipment as needed to teach the curriculum; and</p> <p>(B) use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher.</p>

CAREER EXPLORATION AND PORTALS TEKS OBJECTIVES	
§127.3 c	<p>4. The student evaluates skills for personal success. The student is expected to: (B) use interpersonal skills to facilitate effective teamwork; and (C) use a problem-solving model and critical-thinking skills to make informed decisions.</p> <p>2. The student analyzes personal interests and aptitudes regarding education and career planning. The student is expected to: (D) determine the impact of technology on careers of personal interest.</p> <p>7. The student develops skills for professional success. The student is expected to: (D) recognize the importance of a healthy lifestyle, including the ability to manage stress; and (E) explore and model characteristics necessary for professional success such as work ethics, integrity, dedication, perseverance, and the ability to interact with a diverse population.</p>

- Instructional Directions** **This activity is designed to take 15–25 minutes as presented below.**
1. Teacher should cut cards apart, laminate and place cards in an envelope or baggie.
 2. Students are placed into partnerships or small groups (no more than three is advised to allow all students ownership of a portion of the activity).
 3. Cards are given to student groups in an envelope. Each envelope contains a set of 10 pictures, 10 job names, and 10 descriptions/scenarios.
 4. Student groups spread cards out and observe/read.
 5. Students begin to match job names with descriptions by using context clues. Students should be advised that some safety “tools” could be used by more than one profession, but that in this activity, there is a best match for each job, description and picture using context clues.
 6. Once all pictures, job names, and description/scenarios are matched as the group deems correct, the group calls the instructor over to check their work.
- Learning Outcome(s)** The students will use observation and context clue reading skills to match a picture and also a verbal description of safety equipment to the job that uses it. The finished product here will be a set of three columns: job names, pictures of safety tools/equipment and a verbal description or scenario for the equipment’s use. In each row, the goal is for the student to match up the job, safety equipment and scenario correctly. Each picture will have a specific job and matching description/scenario. No writing involved in this activity.
- Related Industries/Occupations** Plumbers, Welders, Machinists, School Teachers, Dentists, Nurses, Radiologic Technologists, Computer Programmers, Software Developers and Accountants
- Deliverables** Students will ask teacher to check completed sets of job titles, description/scenarios and safety tool once all sets are complete in their group.
- Resources Needed** 1. Laminated sets of Tools of the Trade Mix Match and Mingle Activity Cards (Blackline Masters S1d.1)
 2. Envelopes for sets as they are cut apart (30 pieces)
 3. Key for teacher (Blackline Master S1d.2)



**Vocabulary or Concepts
(New and/or Challenging)**

- Relationships
- Attributes
- Classification
- Profession

MODIFICATIONS & EXTENSIONS

- Students interview parents on safety equipment that they use on their job.
- Students write an essay on the importance of safety training in the workplace.
- **Simplify:** Students could have a modified set of clues with key words underlined.
- **Simplify:** Scenarios attached to pictures. The only match is with the job name.

Adapted from Clear Creek ISD Mix, Match and Mingle activities: Classification, Ecology, Genetics

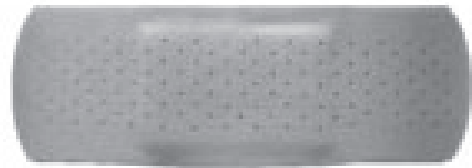


PLUMBERS

Work areas are not always easy to access or work in. In confined spaces, avoid oxygen deficient atmospheres, and monitor levels of hydrogen sulfide, a by-product of sewage decomposition. It can build up to unhealthy levels.

WELDERS

Protect eyes from radiation exposure. Infrared radiation can cause retinal burning and cataracts and it can usually be felt as heat. Ultraviolet radiation, which cannot be felt, can cause an eye-burn. This condition may not be apparent until several hours after exposure. It can cause extreme discomfort and can result in swelling, fluid excretion and temporary blindness.



MACHINISTS

Using eye protection in the machine shop is the most important safety rule of all. Metal chips and shavings can fly at great speeds and distances and cause serious eye injury. Safety glasses must be worn when working with hand-cutting tools, since most hand-cutting tools are made of hardened steel and can break or shatter when used improperly.

SCHOOL TEACHERS

These safety tools may become obsolete with more technology-driven, paperless assignments.



DENTISTS

Worn whenever contact with blood or other potentially infectious materials is likely to occur. Since saliva is considered a potential infectious material, these should be worn in almost all patient procedures and when touching contaminated items or surfaces.

NURSES

These workers have hands-on daily contact with their patients and therefore play a vital role in patient safety and infection control. The Center for Disease Control explains how hand-washing is the single most effective way to prevent the spread of infection.



RADIOLOGIC TECHNOLOGISTS

These workers are protected from radiation by using protective equipment such as lead shields, by following rigid safety procedures, and by wearing film badges to monitor exposure to radiation.



COMPUTER PROGRAMMERS

These workers can design instructions to cut and shape machine, automobile and aviation parts. They then input an instructional program into their machines to set guidelines for movement, cutting and shaping. Anyone seeking this profession should be capable of closely following safety measures, including wearing safety gear such as earplugs because machine tools can be hazardous.



SOFTWARE DEVELOPERS






ACCOUNTANTS

The American Academy of Ophthalmology also recommends that users should look up or away from their screens several times an hour. In addition, frequent blinking tends to lubricate the eyes and prevent them from drying out.

Some workplace injuries can happen from sitting in one place too long while making sure the company has accurate public records and its taxes are paid properly and on time. But there is a solution for this kind of fatigue.





MIX, MATCH AND MINGLE ACTIVITY CARDS

TEACHER KEY

<p>PLUMBERS</p>	<p>Work areas are not always easy to access or work in. In confined spaces, avoid oxygen deficient atmospheres, and monitor levels of hydrogen sulfide, a by-product of sewage decomposition. It can build up to unhealthy levels.</p> <p>http://www.statefundca.com/safety/safetymeeting/SafetyMeetingArticle.aspx?ArticleID=501</p>	
<p>WELDERS</p>	<p>Protect eyes from radiation exposure. Infrared radiation can cause retinal burning and cataracts and it can usually be felt as heat. Ultraviolet radiation, which cannot be felt, can cause an eye-burn. This condition may not be apparent until several hours after exposure. It can cause extreme discomfort and can result in swelling, fluid excretion and temporary blindness.</p> <p>http://www.lincolnelectric.com/en-us/education-center/welding-safety/pages/personal-protective-equipment-faqs.aspx</p>	
<p>MACHINISTS</p>	<p>Using eye protection in the machine shop is the most important safety rule of all. Metal chips and shavings can fly at great speeds and distances and cause serious eye injury. Safety glasses must be worn when working with hand-cutting tools, since most hand-cutting tools are made of hardened steel and can break or shatter when used improperly.</p> <p>http://machinist.org/army-machine-tool/general-machine-shop-safety/</p>	
<p>SCHOOL TEACHERS</p>	<p>These safety tools may become obsolete with more technology-driven, paperless assignments.</p>	
<p>DENTISTS</p>	<p>Worn whenever contact with blood or other potentially infectious materials is likely to occur. Since saliva is considered a potential infectious material, these should be worn in almost all patient procedures and when touching contaminated items or surfaces.</p> <p>http://www.ada.org/sections/professionalResources/pdfs/cdc_protective_equipment.pdf</p>	

MIX, MATCH AND MINGLE ACTIVITY CARDS

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<p>NURSES</p>	<p>These workers have hands-on daily contact with their patients and therefore play a vital role in patient safety and infection control. The Center for Disease Control explains how hand-washing is the single most effective way to prevent the spread of infection.</p> <p>http://www.juns.nursing.arizona.edu/articles/fall%202009/infection%20conrol.htm</p>	
<p>RADIOLOGIC TECHNOLOGISTS</p>	<p>These workers are protected from radiation by using protective equipment such as lead shields, by following rigid safety procedures, and by wearing film badges to monitor exposure to radiation.</p> <p>http://www.michigan.gov/healthcareers/0,4590,7-221-39742-63169-,00.html</p>	
<p>COMPUTER PROGRAMMERS</p>	<p>These workers can design instructions to cut and shape machine, automobile and aviation parts. They then input an instructional program into their machines to set guidelines for movement, cutting and shaping. Anyone seeking this profession should be capable of closely following safety measures, including wearing safety gear such as earplugs because machine tools can be hazardous.</p> <p>http://education-portal.com/become_a_cnc_programmer.html</p>	
<p>SOFTWARE DEVELOPERS</p>	<p>The American Academy of Ophthalmology also recommends that users should look up or away from their screens several times an hour. In addition, frequent blinking tends to lubricate the eyes and prevent them from drying out.</p> <p>http://consumer.healthday.com/encyclopedia/article.asp?AID=646385</p>	
<p>ACCOUNTANTS</p>	<p>Some workplace injuries can happen from sitting in one place too long while making sure the company has accurate public records and its taxes are paid properly and on time. But there is a solution for this kind of fatigue.</p> <p>http://www.inc.com/guides/2010/05/9-avoidable-workplace-health-safety-hazards.html/1</p>	