Digital Imaging Careers

Unit: Technology

Problem Area: Manage Digital Imaging

Lesson: Digital Imaging Careers

Student Learning Objectives.

Instruction in this lesson should result in students achieving the following objectives:

1. **Explain digital imaging.**
2. **Identify digital imaging careers.**
3. **Identify medical digital imaging careers.**

Resources.

The following resources may be useful in teaching this lesson:

E-unit(s) corresponding to this lesson plan. CAERT, Inc. http://www.mycaert.com.

Asbury, Clay. "What Is a Digital Imaging Technician: Interview with a DIT," *Screenlight*. Accessed July 13, 2014. http://www.screenlight.tv/blog/2013/02/08/what-is-a-digital-imaging-technician/.

Brunet, Michelle. "Top 5 Paying Medical Imaging Jobs," *UltrasoundSchoolsInfo*. Accessed July 13, 2014. http://www.ultrasoundschoolsinfo.com/top-5-paying-medical-imaging-jobs/.

Davies, Faith. "Careers in Medical Imaging," *eHow.com*. Accessed July 13, 2014. http://www.ehow.com/list_6117710_careers-medical-imaging.html.

"How Can I Become a Digital Imaging Technician?" *DegreeDirectory.org*. Accessed July 13, 2014. http://degreedirectory.org/articles/How_Can_I_Become_a_Digital_Imaging_Technician.html.

Murray, Carl. "Digital Imaging Careers," *Prezi*. Accessed July 13, 2014. http://prezi.com/btnvjve0iiwi/digital-imaging-careers/.

Equipment, Tools, Supplies, and Facilities

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials

Key Terms.

The following terms are presented in this lesson (shown in bold italics):

- brand identity designer
- creative art director
- diagnostic medical sonographer
- digital
- digital imaging
- graphic designer
- illustrator
- imaging
- layout artist
- logo designer
- magnetic resonance imaging technologist
- multimedia designer
- nuclear medicine technologist
- radiation therapist
- radiologic technologist

Interest Approach.

Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

> *Explain to your students that digital imaging careers cover a wide range of opportunities. Depending on the location and the industry, salaries and benefits vary. Digital imaging careers pertain to photography and motion pictures as well as the medical field. Technology has changed the way the world sees images and continues to change with advances. Have the students work in small groups to create lists of how digital imaging has changed certain careers.*

CONTENT SUMMARY AND TEACHING STRATEGIES

Objective 1: Explain digital imaging.

Anticipated Problem: What is digital imaging?

I. ***Digital imaging*** is the creation of electronic reproductions, typically from a physical scene.

A. ***Digital*** is data represented using discrete (discontinuous) values in electronic form.

B. ***Imaging*** is the reproduction of an object's outward form, especially a visual representation.

C. The first digital image was produced in 1920 as a series of negatives on zinc plates.

D. In 1957, a device was developed that could store digital data on a computer.

E. In the early 1960s, equipment was produced to generate real-time digital images.

F. By the 1980s, this equipment was readily available at a reasonable price for consumers to use in camcorders, cameras, and computers.

G. Each of the previously mentioned creations led to modern digital imaging.

Teaching Strategy: *Have the students work independently to expand their knowledge of how the digital imaging industry has changed since the 1960s. You may ask them to answer questions, such as: What products became available to consumers? What equipment has been invented to make digital imaging so inexpensive? How does the population benefit from digital imaging?*

Objective 2: Identify digital imaging careers.

Anticipated Problem: What are some digital imaging careers?

II. Many digital imaging careers pertain to the field of photography and motion pictures.

A. Graphic designer

1. A ***graphic designer*** is a professional who assembles images, typography, or motion graphics to create a design piece.
2. A graphic designer must be organized and must be able to work with others to produce the desired product.
3. A graphic designer draws out and digitally generates all layouts of the design.

B. Creative art director
   1. A ***creative art director*** is a person who oversees the production of art design.
   2. He or she focuses mainly on the creative aspect of the design.

C. Layout artist
   1. A ***layout artist*** is a person who deals with the structure and layout of images and text in a pleasing format.
   2. He or she makes sure the design is informative and visually appealing.

D. Brand identity designer
   1. The ***brand identity designer*** is a person who creates all advertisement concepts for a company.
   2. Advertising can include commercials, merchandise, and logos.

E. Logo designer
   1. The ***logo designer*** is a person who creates a way to express the company through an image. Another name for a logo designer is an ***illustrator***.
   2. He or she takes the information from the client and creates a concept, draws the concept, and pieces it together with the company's marketing specialist to convey the key points of the company.

F. Multimedia designer
   1. The ***multimedia designer*** is a person who combines graphic design with different types of media to create entertainment and educational products.
   2. The multimedia designer must have extensive knowledge of graphic design software.

Teaching Strategy: *Have students choose one of the following and/or find others and use the Internet to explore these other careers: logo designer/illustrator, photographer, prepress technician, desktop publisher, web designer, motion graphics designer, and visual journalist. Have them write a short essay to present to the class about their chosen topic.*

Objective 3: Identify medical digital imaging careers.

Anticipated Problem: What are medical digital imaging careers?

III. Medical imaging jobs have become one of the fastest-growing industries.

   A. Radiation therapist
      1. A ***radiation therapist*** is an allied health professional who works in a specialized field of oncology with radioactive substances.
      2. He or she plans and administers radiation treatments to cancer patients.

B. Nuclear medicine technologist

1. A ***nuclear medicine technologist*** is a health professional who works in a highly specialized field of medicine dealing with diagnostic and therapeutic techniques using radionuclides or radioisotopes.
2. His or her job involves administering radioactive substances in the diagnosis and treatment of disease.

C. Diagnostic medical sonographer

1. A ***diagnostic medical sonographer*** is a person who uses ultrasound-based diagnostic imaging to visualize internal body structures.
2. Many types of images can be formed using ultrasound.

D. Magnetic resonance imaging technologist

1. A ***medical resonance imaging technologist*** is a person who uses ultrasound-based diagnostic imaging to visualize internal body structures by producing cross-sectional images.
2. A range of applications exist, with more than 25,000 scanners used worldwide.

E. Radiologic technologist

1. A ***radiologic technologist*** is a person who performs imaging of the human body for the diagnosis or treatment of medical problems.
2. He or she uses expertise and knowledge to assess patients, develop optimal radiologic techniques, and evaluate radiographic images.

Teaching Strategy: *Use VM–A and VM–B in a discussion. Have students use the Internet to explore one or more of the medical digital imaging careers. Have them write essays to answer the following questions and to share other important information: What type of education is needed for each position? What is the median pay for each of the jobs listed? Assign LS–A.*

Review/Summary. Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. If a textbook is being used, questions at the ends of chapters may be included in the Review/Summary.

Application. Use the included visual master(s) and lab sheet(s) to apply the information presented in the lesson.

Evaluation. Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

Answers to Sample Test:

Part One: Matching

1. c
2. f
3. a
4. e
5. b
6. d

Part Two: Completion

1. radiation therapist
2. diagnostic medical sonographer
3. nuclear medicine technologist
4. magnetic resonance imaging technologist
5. 25,000
6. radiologic technologist

Part Three: True/False

1. F
2. T
3. T
4. T
5. F
6. F

Sample Test

Name _____

Digital Imaging Careers

Part One: Matching

Instructions: **Match the term with the correct definition.**

a. digital
b. imaging
c. digital imaging
d. graphic designer
e. logo designer
f. brand identity designer

_____1. The creation of electronic reproductions, typically from a physical scene

_____2. A person who creates all advertisement concepts for a company

_____3. Data represented using discrete (discontinuous) values in electronic form

_____4. A person who creates a way to express the company through an image

_____5. The reproduction of an object's outward form, especially a visual representation

_____6. A professional who assembles images, typography, or motion graphics to create a design piece

Part Two: Completion

Instructions: **Provide the word or words to complete the following statements.**

1. A/an _____ is an allied health professional who works in a specialized field of oncology with radioactive substances.
2. A/an _____ is a person who uses ultrasound-based diagnostic imaging to visualize internal body structures.
3. Administering radioactive substances in the diagnosis and treatment of disease is the career of a/an _____.

4. A/an _____ is a person who uses ultrasound-based diagnostic imaging to visualize internal body structures by producing cross-sectional images.

5. There are more than _____ medical resonance scanners used worldwide.

6. A/an _____ is a person who performs imaging of the human body for the diagnosis or treatment of medical problems.

Part Three: True/False

Instructions: **Write *T* for true or *F* for false.**

_____1. Digital imaging careers only cover the medical industry.

_____2. Digital imaging basically started in 1920.

_____3. Medical digital imaging careers are some of the fastest growing.

_____4. The early 1960s brought about digital imaging in real time.

_____5. Digital imaging has not changed much since the 1960s.

_____6. Digital imaging careers are limited.

VM–A

REVIEW DIGITAL IMAGING CAREERS

- Graphic designer
- Creative art director
- Brand identity designer
- Logo designer
- Multimedia designer
- Layout artist

VM–B

REVIEW MEDICAL DIGITAL IMAGING CAREERS

- Radiation therapist
- Nuclear medicine technologist
- Diagnostic medical sonographer
- Magnetic resonance imaging technologist
- Radiologic technologist

LS–A

Name _____

Careers in Digital Imaging

Purpose

The purpose of this activity is to explore careers in digital imaging.

Objectives

Compare and contrast digital imaging careers.

Materials

- computer
- document software
- Internet

Procedure

1. Make a table with the headings: career, description, comparisons, and contrasts.
2. Choose digital imaging or medical digital imaging careers.
3. List the information in the table. (For the information in comparisons, explain how some careers may overlap others. For contrasts, explain how the career may be different from all the other careers in the field.)
4. You may or may not use both the comparison and contrast section for each career.