Igniting Curiosity Through Project-Based Learning

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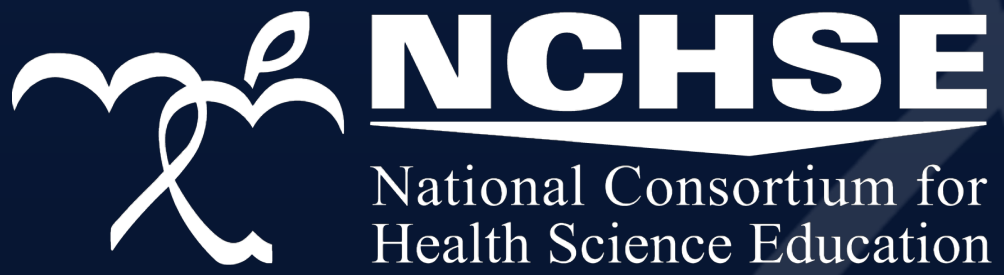
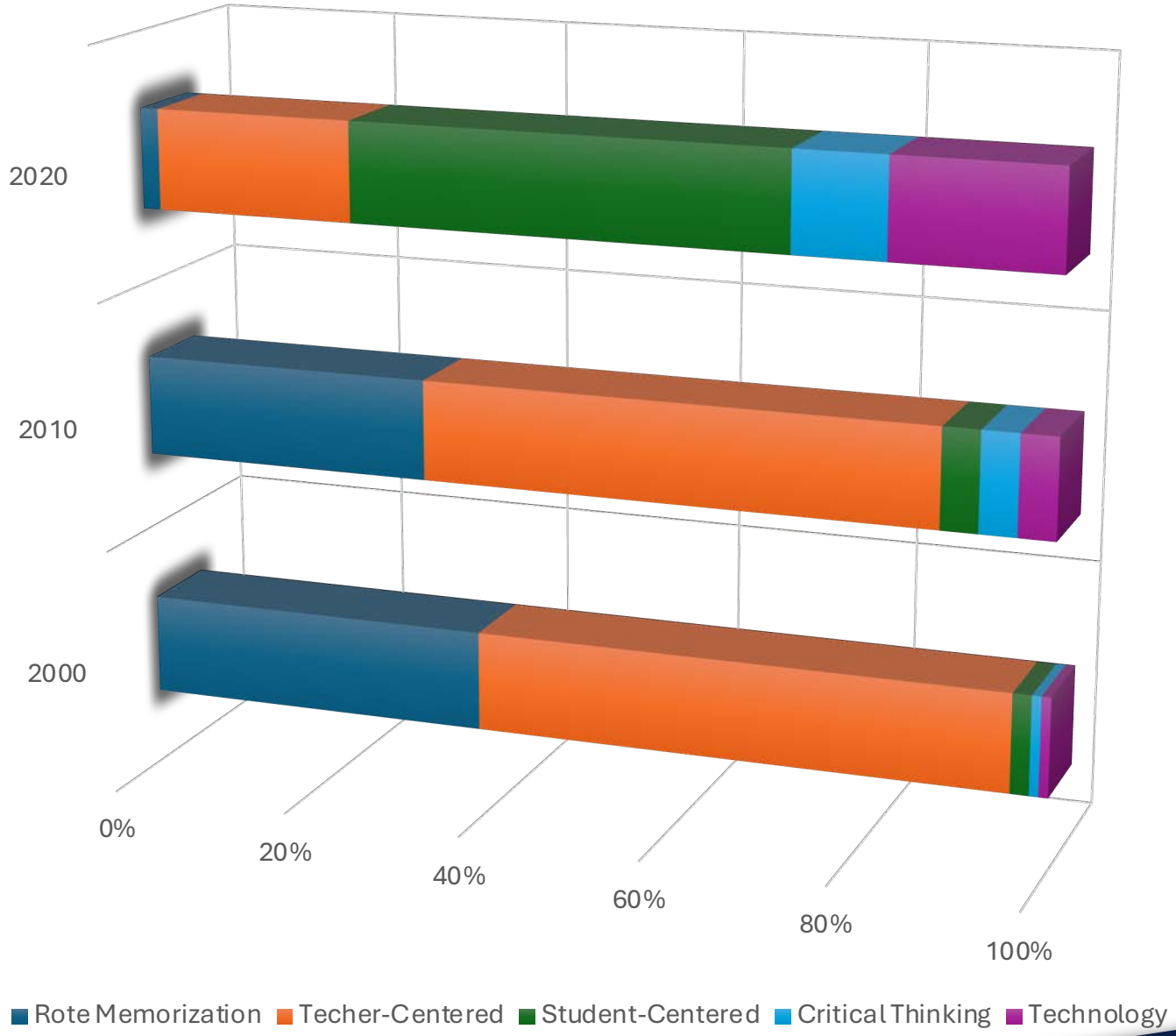


Building Curiosity into the curriculum

- Reaching the Inquisitive
- Feeding the Interested



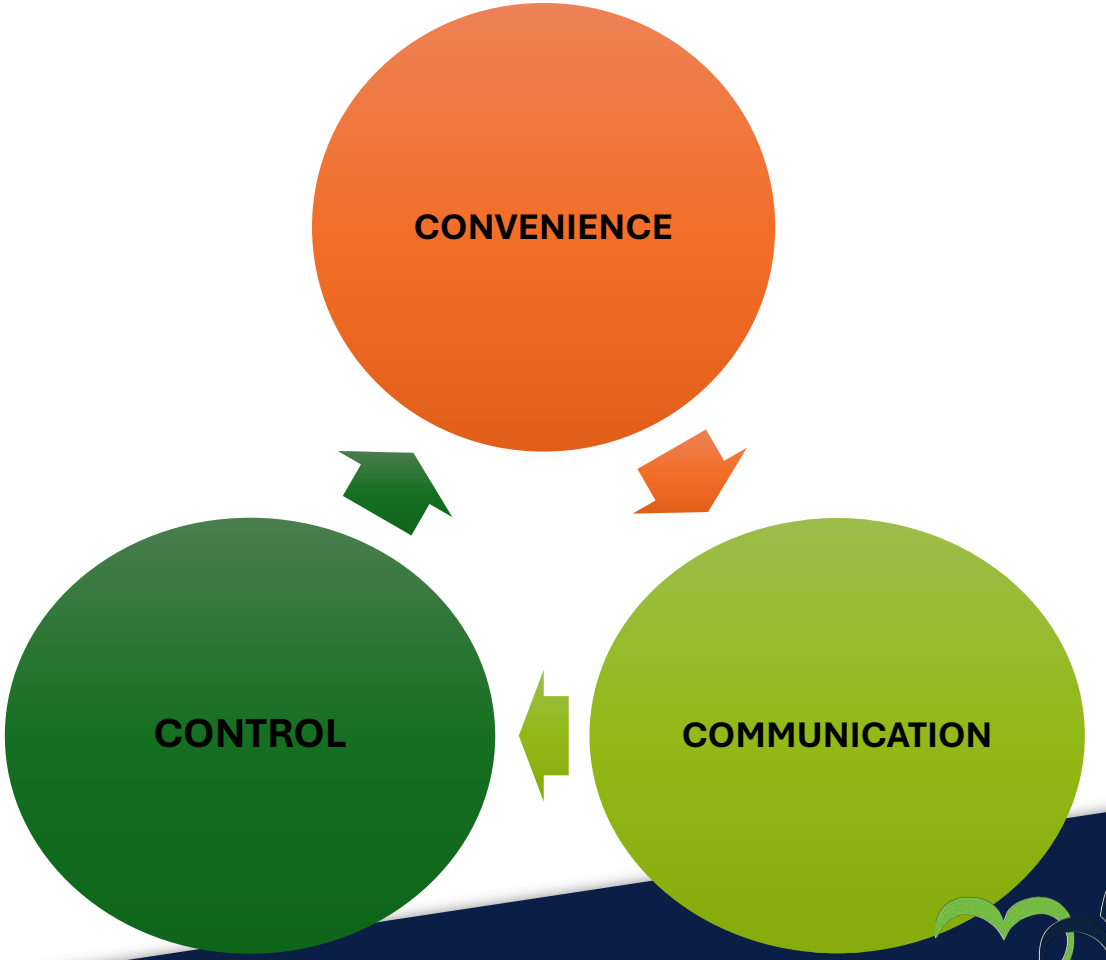
Evolution of Academic Environment

Questions and Curiosity

The catalyst for motivation and engagement

- Natural and innate drive starting in infancy
  - Putting things in the mouth
  - Responding to voices
  - Manipulating objects
  - Exploring environment
- Developmental stages – begin to ask questions
  - Natural curiosity
  - Exploring ideas
  - Build cognition
- Then what happens?

Today's Learner



Student-Centered Approach

Convenience	Communication	Control
Micro-learning	Social Learning	Want learning to connect with real life needs
AI utilization	Team based learning	Independent learning
Self-Paced learning	Input into curriculum and assessment	Learning based on interests and learning styles

“Curiosity is about the openness to experience”

JL Cropley

- How do we reignite curiosity in the older student?
- What format will address the next gen student’s need for convenience and control?
- Does your curriculum provide opportunities for autonomy in student engagement?
- Is there opportunity for students to share and build on life experiences while learning?

Steps to Change

Investigate

- Be Curious Yourself.
- Ask Questions and Question Answers.
- Practice and Encourage Active Listening.
- Look for the Hook.

Ideate

- Include students.
- Look for the Hook.
- Think outside the box.
- Build on developmental level of curiosity.

Implement

- Model an open, inquisitive attitude to new and familiar activities, ideas, people, and cultures.
- Practice and Encourage Active Listening.
- Present New Information in Chunks.

Collaborate

Scan me!

• Convenience

- What steps can we take to create convenient curiosity?

• Communication

- How do we communicate this to students?

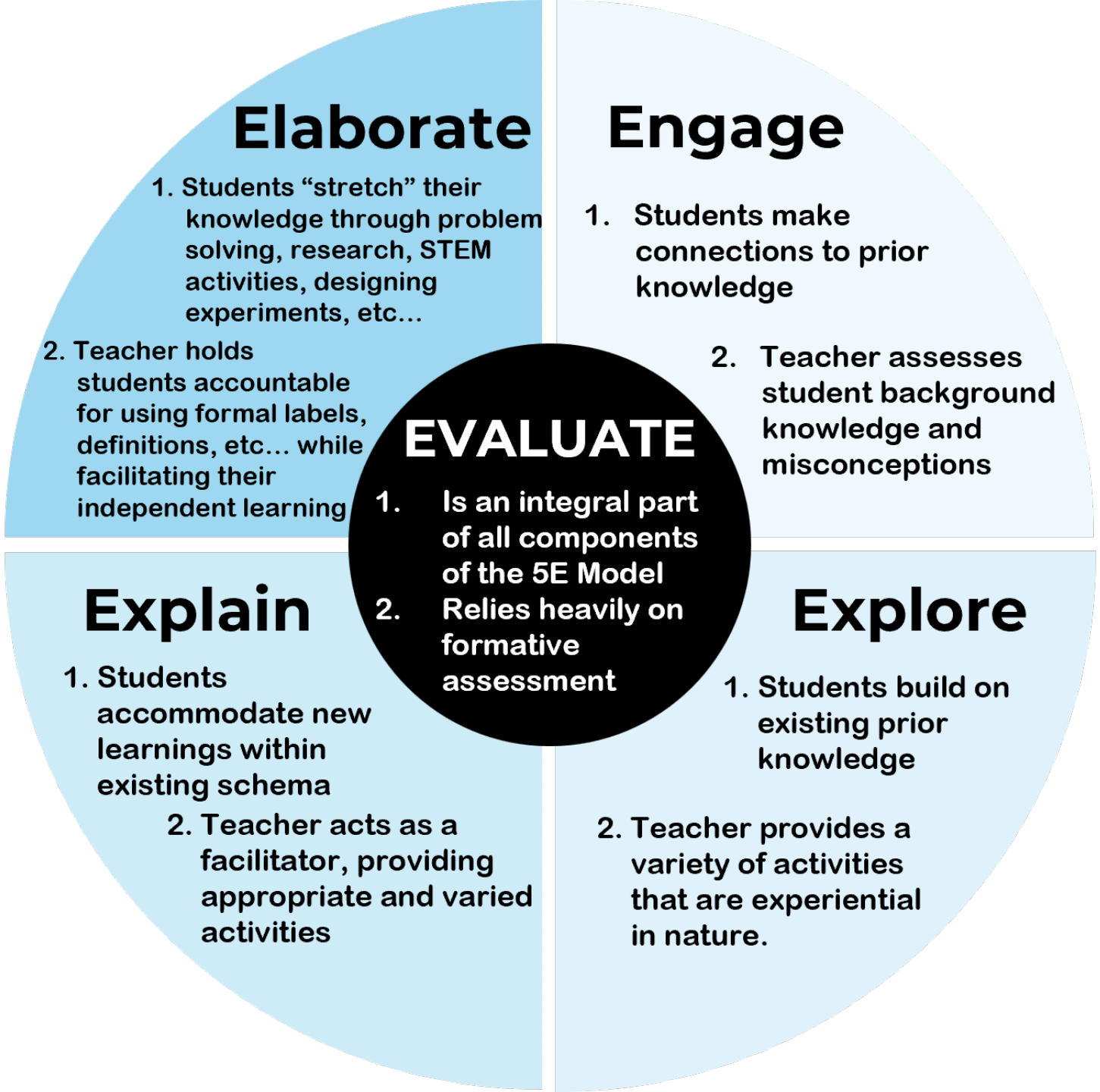
• Control

- Will students feel they have autonomy and control over their learning?

Typical Lesson Plan

Sample Lesson Plan **Teacher:** Sue Blue		**School District:** Rainbow CSD **Building:** Red Elementary
Subject: Science		**Grade Level(s)/Course:** 1st grade
	Which subject-specific objectives are going to be addressed in the lesson? **The student is expected to** • sort organisms and objects according to their parts and characteristics; and • observe and describe the parts of plants and animals.	
Goal of Lesson:	**What is the stated purposes, or goals of the lesson?** • The student will be able to identify the basic anatomy of an insect: 3 body parts, 6 legs, and 2 feelers. • The student will be able to identify insects and non-insects based on anatomy.	
Introduction:	**What activity will focus attention on the subject matter of the upcoming lesson?** Students will be shown images of insects downloaded from the Internet and asked how the insects are alike and different. Questions to guide the students' attention to the anatomy of the insect will be used. **Technology Integration:** A computer equipped with Microsoft PowerPoint will display images of insects that have been downloaded from the Internet.	
Procedures:	**What approach will be used to provide information (explain) the lesson to the students?** A PowerPoint presentation will present the anatomy of an insect and will project a slide show about insects onto a television screen.	
	Modeling:	**What modeling will take place to demonstrate what the students will do?** The students will be shown a picture of an insect. Together determine if the picture is an insect or not. Model thinking through the picture orally to determine if it is an insect or not. 4b Help students make a connection between the body parts of an insect by comparing the insect body parts to human body parts. . Have students say the names of the body parts of an insect and the number of legs and antennae. Show a diagram of an insect with the body parts labeled. and ask the students how many body parts does an insect have? How many legs does an insect have?
	Checking for Understanding:	**What check(s) will be used to determine if learners have understood the material and activities of the**

- Learning Objectives
- Introduction
- Didactic – Content Presentation (Five Es in Science)
  - Engage
  - Explore
  - Explain
  - Extend
  - Evaluate
- Wrap-Up


Elaborate
1. Students "stretch" their knowledge through problem solving, research, STEM activities, designing experiments, etc…
2. Teacher holds students accountable for using formal labels, definitions, etc… while facilitating their independent learning
Engage
1. Students make connections to prior knowledge
2. Teacher assesses student background knowledge and misconceptions
EVALUATE
1. Is an integral part of all components of the 5E Model
2. Relies heavily on formative assessment
Explain
1. Students accommodate new learnings within existing schema
2. Teacher acts as a facilitator, providing appropriate and varied activities
Explore
1. Students build on existing prior knowledge
2. Teacher provides a variety of activities that are experiential in nature.

Engage

Open-ended questions:

- What would happen if …
- What would it be like to …
- Why did …
- How do we know that …
- What did you think when

Explore

Interactive and Engaging Activities:

- Work in groups (compare ideas, solve problems)
- Hands-on activities (labs, simulations, etc.)
- Learn-do-teach
- Encourage curiosity through questioning

Explain

- Know-Learned-Question State
- Student hypothesis
- Question/Answer session
- Determine what is missing

Elaborate

- New Information – new activities
- Interest-based activities
- Project-based activities
- Connecting to careers
- Science today

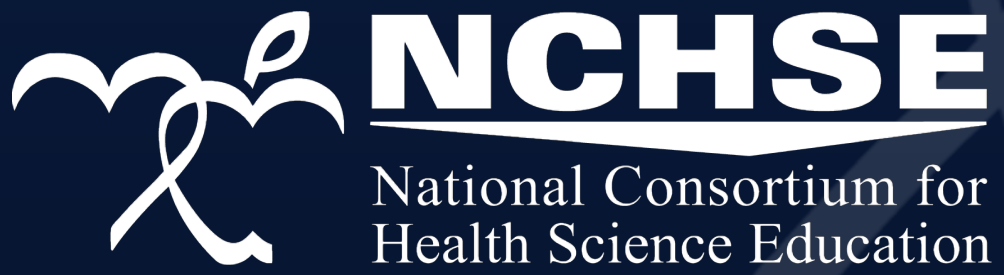
Evaluate

- Formative vs summative assessment
- Self assessment
- Peer review
- Portfolio
- presentations

Now…Restructure

How can you stimulate curiosity?

Questions



Project-Based Learning, Activity-Based Assessment in Health Occupations

What Students Need to Know

Key Skills

Communication	Critical Thinking	Time Management	Collaboration	Leadership
Communication is needed to build a trusting relationship with patients as well as communicate with other healthcare professionals	Clinical care and judgment are determined by the ability to think critically.	Focus on priorities and patient needs is critical in the health care field.	Healthcare professionals must work together to ensure quality and safe patient care.	Site efficiency and positive out-look are facilitated by strong leadership

Common Clinical Skills

- Hand Hygiene/Asepsis
- Gowning/Gloving (PPE)
- Standard Precautions/Bloodborne Pathogens
- Direct Patient Care
- Patient Safety
- Transporting/Transferring Patients
- Review of Medical Records
- CPR and First Aid
- HIPAA Compliance/HITECH

Name _____

Date _____

Lab Skills	*Developing*	*Mastery*	*Proficient*
1. Use hand lens to view objects			
2. Use stopwatch to measure time			
3. Use ruler (metric) to measure length			
4. Use balances and spring scales to weigh objects			
5. Use thermometers to measure temperature (°C, °F)			
6. Use measuring cups to measure volumes of liquids			
7. Use graduated cylinders to measure volumes of liquids			

Rubric

Category	3	2	1
Content and Accuracy (x3)	All information is accurate and represents the content learned in this unit.	Several pieces of information were inaccurate and/or did not accurately reflect all of the content learned in this unit.	Project incl… significant err… the informati… inaccurate an… not accurately… all of the co… learned in thi…
Completeness	Student followed all aspects of the project and fulfilled all requirements.	Student followed most aspects of the project but some requirements may be missing.	There are m… aspects of the … missing.
Neatness and Conventions	Work is legible, neat, and there are minimal grammatical errors throughout the entire project.	Work is somewhat neat but there are several grammatical errors throughout the project.	Work is illegib… there are m… grammatical … throughout… project.
Efficient use of class time			Used time well… each class pe… whether in-person or virtually

Total= _____/16 points

***** DO NOT WRITE ON TEST*****

1. Which statement is best supported by the graph?

   A. The percentage of male daily smokers increased the most between 1978 and 1980.
   B. Between 1977 and 1989, a greater percentage of daily smokers were female than male.
   C. The percentage of female daily smokers decreased every year from 1976 to 1991.
   D. Between 1984 and 1991, the percentage of male daily smokers decreased.

2. Which statement is best supported by the graph?

   A. On average, more men than women smoke.
   B. On average, more women than men smoke.
   C. Equal numbers of men and women smoke.
   D. The cancer rate for women is higher than it is for men.

3. Which of the following statements is true according to the graph?

   A. A higher percentage of people smoke in 1990 than in 1975.
   B. The percentage of smokers has not changed between 1975 and 1990.
   C. A higher percentage of people smoked in 1975 than in 1990.
   D. The graph does not show any trends between 1975 and 1990.

4. Which one of the following questions cannot be determined from the graph?

   A. The percentage of female smokers between 1976 and 1978.
   B. The groups being compared in the survey.
   C. Percentages of male smokers between 1975 and 1991.
   D. The number of female smokers.

5. Which of the following can be extrapolated from the graph?

   A. The percentage of male smokers will drop in 1993.
   B. The percentage of female smokers will remain constant in 1993.
   C. The percentage of male smokes will be higher in 1993 than it was in 1992.
   D. The percentage of male smokers will be higher in 1993 than it was in 1977.

***** DO NOT WRITE ON TEST*****

Typical Assessment: Diagnostic, Formative, Summative

CAAHEP

- Standards and Guidelines for Higher Education

34 Programs

- Anesthesia Tech
- Cardiovascular Tech
- Art Therapy
- Occupational Therapy
- Cytotechnology
- Clinical Research
- Exercise Physiology
- Lactation Consultant
- Medical Illustrator
- Medical Assisting
- Orthotic and Prosthetics
- Perfusion
- Respiratory Care
- Recreational Therapy
- Surgical Assisting

Sample Standards and Competencies

• Exercise Physiology

- Perform a pre-participation health screening including review of the participant's medical history and knowledge, their needs and goals, the program's potential benefits and additional required testing and data.
- Develop a clinically appropriate exercise prescription using all available information (e.g., clinical and physiological status, goals and behavioral assessment).

• Medical Assisting

- Accurately measure and record a. blood pressure b. temperature c. pulse d. respirations e. height f. weight (adult and infant) g. length (infant) h. head circumference (infant) i. oxygen saturation
- .Select proper sites for administering parenteral medication
- Administer oral medications
- Administer parenteral (excluding IV) medications

• Art Therapy

- Demonstrate how to apply decision-making models and legal principles to ethical dilemmas
- Demonstrate how to complete professional documentation required in clinical mental health settings such as treatment plans and progress notes
- Demonstrate how theory informs art therapy assessment and treatment planning

Standards Comparison

CAAHEP – Medical Assisting

- Identify structural organization of the human body
- Identify body systems*
- Identify: a. body planes b. directional terms c. quadrants d. body cavities
- Identify major organs in each body system*
- Identify the anatomical location of major organs in each body system*
- Identify the structure and function of the human body across the life span
- Identify the normal function of each body system*
- Identify common pathology related to each body system* including: a. signs b. symptoms c. etiology d. diagnostic measures e. treatment modalities

NCHSE Standards

- 1.1.1 Describe the organization of the human body and directional terms. a. Identify levels of organization b. Demonstrate anatomical position c. Identify body planes d. Use directional terms e. Identify body cavities
- 1.1.2 Identify basic structures and describe functions of human body systems
- Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders, including, but not limited to the following:

How do we mimic these activities?

How do we measure student mastery and success?

AI Simulation Example

Assessing skills

Both Hard and Soft

How To Assess Skills…

Formative

- What are you currently doing in your class?

Summative

- What high stakes assessments tests a student's true ability?

Pass/Fail Rubric

Name _____

Date _____

Lab Skills	*Developing*	*Mastery*	*Proficient*
1. Use hand lens to view objects	_____	_____	_____
2. Use stopwatch to measure time	_____	_____	_____
3. Use ruler (metric) to measure length	_____	_____	_____
4. Use balances and spring scales to weigh objects	_____	_____	_____
5. Use thermometers to measure temperature (°C, °F)	_____	_____	_____
6. Use measuring cups to measure volumes of liquids	_____	_____	_____
7. Use graduated cylinders to measure volumes of liquids	_____	_____	_____

Clinical Competency Rubric

Competency: 101.2.1.2 Selecting Appropriate Personal Protective Equipment (PPE)

NY DOL Appendix: A.1. Learn and follow employer-specific policies, procedures, safety protocols, etc. A.2. Demonstrate an understanding of the healthcare environment and a Medical Assistant (MA) role in the industry. Demonstrate an understanding of the scope of practice for nursing roles [i.e., licensed practical nurses (LPN), registered nurses (RNs)], and providers [i.e., physicians, nurse practitioners (NPs), and physician assistants (PAs)], and how MAs collaborate with other clinical staff including LPNs, RNs, NPs, PAs, and physicians.
B.SHW.2 Infection Control
B.SHW.3 All Applicable Occupational Safety & Health Administration (OSHA) Regulations, Standards and Rules
B. SHW.5 Occupational Health and Safety Techniques following the Centers for Disease Control and Prevention Guidelines
CAAHEP Standard: III.P. 3. Perform handwashing
III.C. 7. Identify the implications for failure to comply with Centers for Disease Control (CDC) regulations in healthcare settings,
Instructions: The Medical Assisting Apprentice (MAA) will demonstrate the appropriate manner in which to perform aseptic handwashing to remove microorganisms and soil from the surface of the hands, hair follicles, and under fingernails.

Materials: Liquid soap, disposable scrub brush or nail cleaner, paper towels.

Description	Points	1st Attempt	2nd Attempt	3rd Attempt
Medical Assisting Apprentice (MAA) Removes jewelry prior to beginning and pushes sleeves up.	4			
Medical Assisting Apprentice (MAA) • **Turns on the water and adjust the flow so that the water is warm.** • **Wets hands thoroughly, keeping hands and forearms lower than elbows.** • **Water does not splash on uniform and clothes do not touch sink or counter.**	18 (6 points each)			
Medical Assisting Apprentice (MAA) performs each step as indicated for a minimum of 5 seconds: • **Back of right and left hand (fingers interlaced)** • **Palm to palm with fingers interlaced** • **Rotational rubbing of left and right thumbs** • **Rub your fingertips against the palm of your opposite hand** • **Rub wrists** • **Repeat sequence at least 2 times**	42 (6 points each)			
Medical Assisting Apprenticeship (MAA) keeps hands and forearms lower than elbows during the entire washing.				
Medical Assisting Apprenticeship (MAA) rinses hands with water, keeping fingertips pointing down so water runs off fingertips. **Does not shake water from hands.**	6			
Medical Assisting Apprenticeship (MAA) does not lean against the sink or touch the inside of the sink during the hand-washing process.	6			
Medical Assisting Apprenticeship (MAA) dries hands thoroughly from fingers to wrists with a paper towel or air dryer. **Disposes of towel in appropriate trash receptacle.**	6			
Medical Assisting Apprenticeship (MAA) uses new paper towel to turn off water. **Disposes paper towel in appropriate trash receptacle.**	6			
Total Points	100			

Competency Pass Date: _____

_____ _____
Signature of Journey-worker Signature of Medical Assisting Apprentice

_____ _____
Printed Name of Journey-worker Printed Name of Medical Assisting Apprentice

Notes:

Rubric - Differentiation

	10 Points	15 Points	20 points	25 points
Information is clear (correct spelling and grammar)	Index cards	Bulleted outline of presentation	Written paper	Written/presented information in poster or PowerPoint to supplement visual
Presentation of information (logical, easily understood)	Verbal report with no visuals	Verbal report with hand out	Colored tri-fold brochure	PowerPoint, Poster, Video, Tic Toc, Simulation
Key aspects of topic are covered	Report calls out key points of topic	Handout, brochure, poster to represent key aspects	Brochure, PowerPoint, Poster to supplement and focus on concepts	Acting/Dramatic play, Key Cards, Pop Ups, Display
Presentation/ creativity	Verbal, Oral report	Poster Board with key concepts and visuals	Marketing materials, Web Design	Role playing/Dramatic play, Simulations, AI generated videos

Thoughts and Ideas…

Knowledge

- Collaborate

Skills

- Collaborate

Affective/Behavior

- Collaborate

Fun Times

Questions?

Contact

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NCHSE
National Consortium for Health Science Education