GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

FOUNDATION SKILLS

PATHWAY: All Pathways

COURSE: All CTAE Courses

UNIT 7.5: Safety—Reaction Time

INTRODUCTION

Annotation:

In this activity, students will complete activities measuring their reaction time. They will learn how quickly common events occur and understand that reacting in time to prevent injury may be impossible, thus learning to take proper safety precautions.

Grade(s):

X	9th
X	10th
X	11th
X	12th

Time: Two 50-minute periods.

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Students with Disabilities:

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.

FOCUS STANDARDS

GPS Focus Standards:

CTAE-FS-7. Safety, Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

GPS Academic Standards:

National / Local Standards / Industry / ISTE:

ESS06 Safety, Health and Environmental: Understand the importance of health, safety, and environmental management systems in organizations and their importance to organizational performance and regulatory compliance. Follow organizational policies and procedures and contribute to continuous improvement in performance and compliance.

UNDERSTANDINGS & GOALS

Enduring Understandings:

The student will understand the importance of taking proper safety precautions in various endeavors. The student will gain an appreciation for how quickly accidents happen, as well as how they might be prevented. The student will understand exactly how slow reaction time is, relative to common events.

Essential Questions:

What are some common accidents?
What is the importance of reacting quickly and appropriately in dangerous situations?
What is reaction time?

Knowledge from this Unit:

Human reaction time is slow compared to how quickly common occurrences happen, especially machines.

Skills from this Unit:

Students will become more cautious when dealing with potentially dangerous situations.

ASSESSMENT(S)

Assessment Method Type: Select one or more of the following. Please consider the type(s) of differentiated instruction you will be using in the classroom.

_____ Pre-test
_____ Objective assessment - multiple-choice, true- false, etc.
__ Quizzes/Tests
__ Unit test
_____ Group project
_____ Individual project
x___ Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
__ Self-check rubrics
__ Self-check during writing/planning process
__ Journal reflections on concepts, personal experiences and impact on one's life
__ Reflect on evaluations of work from teachers, business partners, and competition judges
__ Academic prompts
__ Practice quizzes/tests
_____ Subjective assessment/Informal observations
__ Essay tests
_x_ Observe students working with partners
__ Observe students role playing
_____ Peer-assessment
__ Peer editing & commentary of products/projects/presentations using rubrics
__ Peer editing and/or critiquing
x___ Dialogue and Discussion
__ Student/teacher conferences
_x_ Partner and small group discussions
_x_ Whole group discussions
__ Interaction with/feedback from community members/speakers and business partners
_____ Constructed Responses
__ Chart good reading/writing/listening/speaking habits
__ Application of skills to real-life situations/scenarios
_____ Post-test

Assessment(s) Title: Ruler Reaction Time

Assessment(s) Description/Directions:
Have students complete the attached activity.

Attachments for Assessment(s):

LEARNING EXPERIENCES

Instructional planning: Include lessons, activities and other learning experiences in this section with a brief description of the activities to ensure student acquisition of the knowledge and skills addressed in the standards. Complete the sequence of instruction for each lesson/task in the unit.

Sequence of Instruction

1. **Identify the Standards. Standards should be posted in the classroom for each lesson.**

   CTAE-FS-7 Safety, Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

2. **Review Essential Questions.**

   What are some common accidents?
   What is the importance of reacting quickly and appropriately in dangerous situations?
   What is reaction time?

3. **Identify and review the unit vocabulary.**

   Millisecond—one thousandth of a second.
   Sensory—pertaining to reception of stimuli through the senses of smell, sight, hearing, touch, and taste.
   Stimulus—something causing a response.

4. **Assessment Activity.**

Ask the class to define *reaction time*. Write the definition of reaction time on the board or projector.

Reaction time—the elapsed time between the presentation of a sensory stimulus and the subsequent behavioral response.

Begin by asking students if they think they have a good reaction time. Ask questions such as:

- If you were a baseball batter and a 90 mph pitch were coming toward you, do you think you would have time to get out of the way?
- If a lawnmower 50 feet away threw a rock in your direction, could you dodge it?
- If a car 30 feet away were moving towards you at 60 mph, could you dodge?

You should expect to hear answers indicating that most students anticipate a better reaction time than they actually possess. For instance, a 90 mph fastball takes .4 seconds to reach the plate—it is highly unlikely that the student would be able to process that the ball was headed towards them and then react in time to dodge it. Professional ball players get hit by pitches all the time, even they have a difficult time dodging the ball at that speed.

Utilizing the chart provided in the attachment, explain to students that accidents such as these listed happen so rapidly that it would be literally impossible to prevent many of these incidents from occurring. Iterate the importance of proper safety precautions being taken.

5.

Tell the students that in order to measure reaction time they are going to do a couple of activities.

a. Ruler Drop Activity

Have the students complete the ruler activity with a partner or in groups. After they have all completed the activity, discuss the results as a group. Ask if they are surprised by the results. Ask for specific reaction times from various students and (using the above mentioned chart) explain the consequences of their reaction time.

b. Computerized Reaction Timer

Next, on a computer, have students participate in the computer reaction time activity. Once every student has completed the activity, discuss the results as a class. Did anyone's reaction time change? Did it get faster or slower? Why do they think that is?

SUMMARY

In this lesson, the students have learned how slow human reaction time really is, compared to the speed at which common events occur.

Attachments for Learning Experiences:

Ruler Reaction Time Activity
Reaction Time Game

Notes & Reflections:

CULMINATING PERFORMANCE TASK (Optional)

Culminating Unit Performance Task Title:

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

Attachments for Culminating Performance Task:

UNIT RESOURCES

Web Resources:

http://www.youtube.com/watch?v=xI2461dDnwc

Attachment(s):

Materials & Equipment:

Ruler(s) or Yardstick(s)

What 21st Century Technology was used in this unit:

	Slide Show Software		Graphing Software		Audio File(s)
	Interactive Whiteboard		Calculator		Graphic Organizer
	Student Response System		Desktop Publishing		Image File(s)
	Web Design Software		Blog	x	Video
	Animation Software		Wiki	x	Electronic Game or Puzzle
	Email		Website		