Lesson Title: Analyzing Body Angles
Length of Lesson 1 Days
Created By Michael Andre Hamilton
Subject Geometry
Grade Level 10th-12th grade
State Standards Geometry 2a
DOK Level DOK 2
DOK Application Graph, Compare, Estimate Infer, Predict,
Interpret, Make Observation, Summarize
National Standards Geometry for 9 – 12th Math Standards
Graduate Research Element Human Factors and Work Physiology

Student Learning Goal:
National Standards for Geometry for 9-12th
A: analyze properties and determine attributes of two- and three-dimensional objects;
B: explore relationships (including congruence and similarity) among classes of two- and three-dimensional geometric objects, make and test conjectures about them, and solve problems involving them;
C: establish the validity of geometric conjectures using deduction, prove theorems, and critique arguments made by others;
D: use trigonometric relationships to determine lengths and angle measures.
State Standards for 9 – 12th Geometry
A: Apply problem solving skills to solve and verify the solutions for unknown measures in similar polygons.

Materials Needed (supplies, hand-outs, resources):
- Paper
- Inclinometer (Research Tool)
- Pencil

Lesson Performance Task/Assessment:
- The students will understand how range of motion is taken in a research environment and learn out to analyze the data in excel.

Lesson Relevance to Performance Task and Students:
The relevance of this lesson is to show that there is a lot of geometry in the body and it has its limitations. To find the limitations, we use inclinometers to track the range of motion of the different body parts. Afterward, they will learn how to use the data and make decisions from the results.

Anticipatory Set/Capture Interest:
At the beginning of class, we will discuss what we learned from the measuring body angles lesson and then talk about how to analyze the data.

Guided Practice:

In each class, three females and males will be selected to participate in the experiment. There neck angles will be measured. There will be four measurements which are neck flexion, neck extension, lateral flexion (left) and lateral flexion (right). Afterwards, the data will be put into excel and they will be shown how to make decisions from the data they have collected by using regression analyses, maximum limitation analyses, and other statistical measures. Once we are finished, we will talk about what they have learned for the experience.

Independent Practice:
The students and the instructor will work together during this process.

Remediation and/or Enrichment:
Remediation
Individual IEP; partner help throughout lesson; shorten parts of assignment; focus on few process

Enrichment:
None

Check(s) for Understanding:
Day 1:
1. Was there a significant difference in neck angles between males and females?
2. What is the max angle for each neck movement for both genders?

Closure:
Have an end of the class discussion

Possible Alternate Subject Integrations:
*None.

Teacher Notes: