ADVANCED BIOLOGY
Kinesiology Project

Objectives

1. To be able to state the action of each muscle.
2. To be able to state what joint or body part the muscle acts to move.
3. To be able to organize muscle identity, action, joint and/or body part it moves in a spreadsheet.
4. To be able to analyze a human motion using digital photography and annotated slide presentation which employs data from a developed spreadsheet (see Objective 4).

Instructions

1. All work including your spreadsheet and final presentation will be created and shared in Google Drive.
2. Create a Google Sheet that identifies the muscle, its action, and the joint and/or body part it moves. Refer to "Joint/Region Choices" handout for guidance of terms to use within spreadsheet. YOU MUST USE THOSE TERMS LISTED! If a muscle has more than one action, include it twice, once with each action, on two separate lines. A prototype is included below.

	A	B	C	D
1	**Muscle**	**Action**	**Joint/Region**	**Body Part Moved**
2	Biceps brachii	Flexion	Elbow	Lower Arm
3	Biceps brachii	Rotation laterally	Elbow	Hand
4	Brachialis	Flexion	Elbow	Lower Arm
5	Triceps brachii	Extension	Elbow	Lower Arm
6	Deltoid	Abduction	Shoulder	Upper Arm
7	Deltoid	Extension	Shoulder	Upper Arm
8	Deltoid	Flexion	Shoulder	Upper Arm

3. Practice sorting by action, joint/region, and body part moved. Extend your practice by completing multi-criteria sorts. For example, select as your first sort criteria, body part moved, and your second sort criteria the action.
4. To print, go to "data", then "sort". Choose **Action** (first). Then click on "add level" for **Joint Region** (second), then **Muscle** (third). Turn in for approval before proceeding with presentation.
5. Select a human motion which you have familiarity. Sketch the different steps or phases in that motion. Stick diagrams work well.
6. Select a partner to assist you in digitally photographing the motion. Take enough photos to demonstrate the motion completely. Remember, you can always edit out unnecessary photographs. If you are confident in making videos, you may choose to use them to supplement your still photos. You may use the Chrome book to create your own YouTube video to insert.
7. Assemble your photographs in Google Slides. Include a title slide, slides with each phase of the motion, and a summary slide. Use the following guidelines:

Title Slide	Title of Motion, Author, Kinesiology Project, Iron Mountain High School Advanced Biology, Winter 2016 (5 points)
Slides of Each Phase	Slides of each phase annotated with muscles completing the action. You may use a format with two vertical panes, one with a photograph of the motion and the other with the muscles involved in each action. You may also fill the entire slide with the action photo and annotate with text labels.

	Annotations must include the body part moved, how it is moved (action), and the muscle(s) involved. (50 points, 10 points for 5 slides, *generally*)
Summary Slide	Summarize the number of body parts involved, the total number of actions, and the total number of muscles involved. Any additional information that you deem necessary may also be included. (5 points)
Design Considerations	Maintain a consistent color scheme, style and text font. Use as many slides as necessary for your audience to understand the motion well. Be economical but complete. (10 points)

Evaluation Checklist

Spreadsheet of Muscles, Actions, Joints, & Body Parts (Rows & columns complete, demonstrated ability to sort on multiple criteria)	30 points
Kinesiology Google Presentation (See table above for criteria)	70 points
Total	100 points

Group Project

You will divide the above tasks among your group members. Each member is responsible for contributing to the project. Your grade may also contain a peer/teacher evaluation component upon the conclusion of the project.

Timeline and Suggested Roles

*** ALL WORK WILL BE SHARED THROUGH GOOGLE DRIVE. YOUR FINAL WORK WILL BE SUBMITTED THROUGH GOOGLE CLASSROOM.

Day 1- Decide on motion & get it approved by Mrs. C. for tomorrow. Sketches of planned pictures. Decide if you can take the pictures in class or if it has to be done outside of class. If done in class, you may need props. Consider making a video to show the actual motion.

Start spreadsheet work- divide among your group.

Day 2- Work on spreadsheet. Picture must be done by the end of the hour today.

Day 3- Finish spreadsheet and start working on presentation (slide formatting, title slide, etc.).

Day 4 &5- Continue with presentation, using spreadsheet to obtain muscles that match action from motion sketch

Day 6- Finish presentation. Decide on presentation roles/practice. Print your slide presentation as a handout, 6 slides per page, gray scale. **Turn in to Mrs. Carey by end of hour.**

Day 7 & 8 - Class presentations. The groups will be picked out of a hat for the order.