**A Gender Gripping Test**

**Grade: 5 Kit: FOSS Human Body Investigation #3a – extension**

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**Guided Question:**

**Which gender has a stronger grip? Why?**

**Objective:**

Students will become more familiar and engaged with the Vernier probes through investigating the guided question given. They will present and communicate the data by using mathematical representations. Using the data found, they will connect how this activity ties in with musculoskeletal system.

**Standards**:

**Science:**

**5.4.1** Investigate technologies that mimic human or animal musculoskeletal systems in order to meet a need.

**5.4.2** Investigate the purpose of prototypes and models when designing a solution to a problem and how limitations in cost and design features might affect their construction.

**5.4.3** Design solutions to problems in the context of musculoskeletal body systems. Using suitable tools, techniques and materials, draw or build a prototype or model of a proposed design.

**Math:**

**5.6.2**: Find the mean\*, median\*, mode\*, and range\* of a set of data and describe what each does and does not tell about the data set.

**Summary:**

Students will measure the strength of their dominant hand using the Hand Dynamometer

**Equipment Needed**:

Vernier Lab Quest

Dynamometer probe

Paper

Pen/pencil

**Description of Procedures**

1. Students separate into gender groups of 2-3
2. Attach the Dynamometer probe to the LabQuest and turn it on.
3. Tap File and highlight New.
4. Tap the Mode and change the time to 10 s (seconds)
5. When ready, tap the play button and grip the Dynamometer as hard as possible for the 10 seconds.
6. After the reading, tap Analyze from the top menu and highlight statistics, then check the force button. A chart with minimum, maximum and mean will appear.
7. Record the data from the statistics in the chart below.
8. Repeat steps 3-7 two more times per student.

**Wrapping Up**

1. Give each student a post it and have them write in marker their max measurement rounded to the nearest whole number. Give girls and boys two different marker colors..
2. Using the post its, have the students make a number line on the whiteboard.
3. Evaluate the results:
   1. What is the range?
   2. Where do you think the mean of the class is?
   3. Make some comparisons of girls vs boys. Which gender has the stronger grip? Why?
   4. What muscles are being used when squeezing the probe? Is there a connection between muscle size and grip strength. How could we find out?
4. In journals, students make quantitative/qualitative observations over the class data

**Extension Activity**

Have students try the same experiment to compare their dominant VS non -dominant hand