Grade 6 Science

Describe the context of your task here. Separate the parts of the task into A, B, C, etc.

A Mass, Volume, and Density are very important in the process of forging parts from steel.

B Given the dimensions for a specific set of **billets** (Billets are cylindrical sections of steel to be used in the forging process.), you will be asked to mathematically calculate the remaining information about each billet.

C Once the calculations are made to determine the dimensional qualities of the billets, you must determine the correct forging process for each billet.

Common Core State Standards

List the Common Core State Standards (and math practices if applicable) associated with your task.

CLE3202.1.1 Explore matter in terms of its physical & chemical properties.
3202.1.3 Use appropriate units to measure or calculate mass and volume of substances.
Calculate the density of substances.

Essential Understandings

What key insights should students take from participating in this task?
Volume and the understanding of it is vitally important to the safe efficient completion of the forging process. If the wrong volume billet is used the forging press could be damaged or the part might not fill out completely.

Possible Solutions/Solution Paths

What solutions or solution paths are acceptable in achieving a correct response for this task? Be sure to address all parts of the task.

1) Density = Mass / Volume or **D = m / V**
2) Volume = pi x radius squared x length or **Volume = $\pi r^2 l$**
3) Weight = mass x gravity or **W = m g**
4) Compare the volumes of the test billets to the table of volumes to determine the appropriate line each billet should be placed in.
5) Make appropriate calculations and evaluate the correct choices.

Additional Teacher Information

Add any additional notes that will help the teacher execute the task including necessary manipulatives, equipment, etc., and possible students misconceptions that may need to be addressed.

See Attached Task