

Bridge Metal

STEM Sims

Lesson 2: Ball Drop

In the File Center, a strong material was filed. This tests metal fatigue as the material rubs against the metal. Bridges must also be tested for high impacts and be able to withstand them. At the Drop Center, a ball will be dropped onto the metal to test its strength. Grab the ball, because it's time to test the metal's strength.

Doing the Science

1. Start the Bridge Metal Simulation by clicking on the "Sim" tab.
2. Click on the "Drop Center" button.
3. Click the "New Sample" icon and choose "Sample #1."
4. Record the 10-digit sample code beside the Sample # in Table 1 below.
5. Click on the red lever labeled "Release" to release the ball onto the bridge metal.
6. Click on the magnifying glass that says "View Sample" to look at the depression.
7. Drag the ruler to the depression. Measure the diameter of the ball depression and record it in Table 1 below.
8. When finished, click on the red "X" button to return to the File Center.
9. Click on "New Sample" and repeat steps 4-8 for all seven samples.
10. Based on the diameter of the depression, rank the metals based on strength (1 being the strongest and 7 being the weakest) and record them in Table 1.

Table 1.

Sample #	10-Digit Sample Code	Diameter of Depression (Millimeters)	Ranking
1			
2			
3			
4			
5			
6			
7			

Do You Understand?

1. Which of the materials was the strongest? Explain.

2. What would happen if you dropped the ball from a greater height? Would a different height change the rankings of the metals? Explain.