**Objectives:** Students will be able to

* explain how the mass of an object is determined using spring balances.
* use the spring balance to determine the mass of an unknown object
* use masses to find the k value of an unknown spring
* find the gravity on Planet X and describe their experiment

**Directions:** Investigate how the simulation works by “mousing around.”

Devise a procedure to find the stiffness (k value) of an unknown spring. Record it in bulleted form in a word document. Then, find the k value of springs 1, 2&3 (set spring 3 to it’s highest stiffness, and then lowest). Record these numbers on the first set of data tables.

Determine the period of each spring for each mass. Do spring 3 twice (max ‘harness’ vs max ‘softness’). Record in data tables.

Devise a procedure to find the mass of the three unknowns. Record it in bulleted form in a word document. Then, find the mass of the three unknowns. Record it on the back of this sheet.

Devise a procedure to find the acceleration due to gravity (g) on Planet X. Record it in bulleted form in a word document. Then, find the acceleration due to gravity on Planet X and record it on the back of this sheet.

Make sure your data table is completely filled in, and all steps you took to discover unknowns were recorded in a word document. Your document should include the following subheadings:

1. How to find K of a spring
2. How to find an unknown mass
3. How to find acceleration due to gravity

And the back of this sheet should be totally filled out. Print your word document, staple, and hand in!

Spring 1 K=

|  |  |
| --- | --- |
| M | Tp |
| 50 |  |
| 100 |  |
| 250 |  |

Spring 2 K=

|  |  |
| --- | --- |
| M | Tp |
| 50 |  |
| 100 |  |
| 250 |  |

Red mass:

Gold mass:

Green mass:

Gravity of Planet X:

Spring 3 (max ‘hardness’) K=

|  |  |
| --- | --- |
| M | Tp |
| 50 |  |
| 100 |  |
| 250 |  |

Spring 3 (max ‘softness’) K=

|  |  |
| --- | --- |
| M | Tp |
| 50 |  |
| 100 |  |
| 250 |  |