**Pendulum Swings AF4.3 L5**

**Read this passage and answer the questions that follow.**

A group of students decided to investigate a simple pendulum. They wanted to find out what variables might affect the time for the pendulum to swing.

They planned to change the length of the string and time how long the pendulum took for ten swings. Here are their results:

String

Metal weight

|  |  |
| --- | --- |
| **Length of string /cm** | **Time for 10 swings/ s** |
| **Test 1** | **Test 2** | **Test 3** |
| 6 | 5.7  | 5.6 | 5.8 |
| 8 | 7.6  | 7.4 | 7.4 |
| 10 | 9.0  | 8.7 | 8.8 |
| 12 | 9.9  | 10.0 | 9.7 |
| 14 | 11.1  | 10.9 | 10.8 |
| 16 | 12.3  | 12.0 | 12.1 |

The difference between the smallest and largest value of the variable being investigated is called the **range**.

1. What is the range in this investigation?
2. What factors might affect the smallest and largest length of string the students decided to use?

The gap between each reading is called the **interval**.

1. What is the interval in this experiment?
2. What problems might be caused if the students chose the following intervals instead:
3. 0.2 cm
4. 20 cm
5. Explain why the students repeated each test three times.
6. Another group of students wanted to investigate if there was a link between the age and shoe size for all the students in their science class. Why would they not need to take repeat values in this investigation?