PRACTICE PASSAGES (TEACHER GUIDE)

PULL(EY)ING YOUR WEIGHT

Questions:

1. The best answer is **B** because the spring scale is used to measure the force needed, and therefore needs to be calibrated to zero before each experiment in order to ensure consistency.

   It is not **A** because it was never said to be faulty in the text, and a faulty spring scale would not give you accurate readings. It is not **C** because there is a reason, it is to ensure results are accurate and consistent. It is not **D** because in the text it states that it is set to zero, not the number of pulleys.

2. The best answer is **D** because the mass stays the same in each experiment.

   It is not **A** because the number of pulleys changes in each experiment. **B** is also incorrect, as the length of the string also changes with the number of pulleys, by necessity. It is not **C** because the force needed to lift the weight changes with the number of pulleys, as seen in the Table.

3. The best answer is **C** because her hypothesis was that each added pulley would reduce the force needed by half, and adding a third pulley reduced it by less than half, which is one-third the force needed, compared to one pulley.

   It is not **A** because while this is true for two pulleys, it did not hold true for adding a third pulley. It is not **B** because this does not match her original hypothesis. It is not **D** because she did get conclusive results.

4. The best answer is **A**, since you can just double the force needed for the 50g mass.

   It is not **B**, **C**, or **D**, as these represent values more or less than appropriate.

5. The best answer is **B**, as adding a pulley divides the force needed by the number of pulleys, so two pulleys divide the force in half, three in thirds, and so on.

   It is not **A** or **C** because they do decrease the force, but not by a set amount. It is not **D** because adding a pulley never increases the force needed.

6. The best answer is **C**, as each pulley added reduces the force by the number of pulleys, so four pulleys will reduce the force needed to one-fourth of the force needed for one pulley.

   It is not **A** or **B** because these correspond to two pulleys and three pulleys respectively. It is not **D** as adding pulleys reduces the force needed, not increases it.

Questions:

7. The best answer is **A** because the results are needed quickly, and it is not a populated area that could be surveyed in terms of people or building damage.

    It is not **B** because the Richter scale provides immediate results and is measuring energy over structural damage. **C** is also incorrect because this scale would not provide quick results. It is not **D** because this description is of the Richter scale.

8. The best answer is **C** because the Mercalli scale involves surveys and provides results in Roman numerals.

    It is not **A** because Richter is not reported using Roman numerals. It is not **B** because an engineer would be more likely to use the Mercalli score, and the Richter results do not come from surveys. It is not **D** because it says Mercalli but describes the Richter scale.

9. The best answer is **D** because students should have subtracted 6.9 from 9.3.

    It is not **A-C** because these answers reflect miscalculations of the numbers.

10. The best answer is **B** because the number of structures and people in an area, or lack thereof, can impact the Mercalli score since it is based on damage to an area. Less populated areas could experience less damage even if the Richer scale rating was higher than that of another earthquake.

    It is not **A**, because the scales are different as they measure different things. It is not **C** because Richter is not based on population or structure surveys. It is not **D** because the Mercalli score is different depending on the earthquake.