Science Numeracy homework task – March.

Please attempt all questions. If you get stuck, please see your teacher for help before the deadline date or use the Numeracy guide available on Bathgate Academy's school website.

RATIOS

1. Calculate the SIMPLEST whole number ratios for;

a. 10 : 4   b. 30 : 5   c. 4 : 30   d. 26 : 6

e. 72 : 48   f. 90 : 27   g. 18 : 14 : 2   h. 15 : 36 : 24

i. 150 : 300 : 750   j. 81 : 72 : 108   k. 2.6 : 0.6

l. 12.4 : 49.6   m. 2.2 : 2.8 : 0.4   n. 0.24 : 0.96 : 0.72

2. The peak flow (the volume of air that can be forced out of the lungs) of five S3 pupils attending 'School of Sport' was measured at the start of the school year and again at the end of the school year. Five readings were taken for each pupil and averaged. The results were;

Pupil	Average peak flow at start of year (cm^3/s)	Average peak flow at end of year (cm^3/s)
A	600	750
B	450	600
C	540	600
D	750	750
E	660	700

a. What aspect of this data makes it reliable?
b. Calculate the simplest whole number ratio of average peak flow at the start of the year compared to the end of the year for each individual pupil.
c. Pupil B showed the greatest improvement in average peak flow. Calculate the average end of year peak flow that pupils A, C, D, and E would have needed to attain to match pupil B's improvement.

3. The heart rate of five S3 pupils was measured whilst they were at rest and then after they had run on a treadmill for 2 minutes. Copy and complete the table using the information below.

The ratio of heart rate at rest compared to after exercise for each pupil was; A – 2 : 5   B – 4 : 9   C – 1 : 2
D – 3 : 7   E – 2 : 5. The ratio of resting heart rate for pupil A compared to pupil C was 3 : 4.

Pupil	Heart rate at rest (bpm)	Heart rate after exercise (bpm)
A	60	
B		180

C		
D	75	
E		200