WHICH MINERAL IS WHICH

You have seven mineral samples labelled 1 to 7 which have got muddled up. You must identify which mineral should go in which box. The carbonates and sulphates belong to two isomorphous series.

The labels in the boxes are

Barite $BaSO_4$
Anglesite $PbSO_4$
Strontianite $SrCO_4$
Witherite $ZnCO_3$
Aragonite $CaCO_3$
Cerussite $PbCO_3$
Gypsum $CaSO_4$

The atomic weights of the cations are:
Ca 44, Zn 65, Sr 87, Ba 137, Pb 207

Weigh the minerals in air and then in water to find their density.

$$\text{Density} = \frac{\text{weight in air}}{\text{weight in air} - \text{weight in water}}$$

Work out which samples are carbonates and which sulphates.

Then list the sulphates and carbonates separately but in order of increasing density.