Teacher Activity H: Working with very large or very small values

The standard unit of length is the metre, but lengths that are much larger or much smaller can also be re-expressed in two ways:

- by using a different unit (e.g. km)

- by using standard form (scientific notation) that involves using powers of ten (e.g. 10^3).

a) In this example, which way of expressing the values do you think is most effective? Why? (The table shows five possibilities for pairs of values.)

The thickness of a human hair is about _____, and the diameter of a white blood cell is about _____.

	Thickness of human hair	Diameter of white blood cell
1	0.0001 m	0.000 01 m
2	0.1 mm	0.01 mm
3	0.1 mm	10 μm
4	100 μm	10 μm
5	10^{-4} m	10^{-5} m

b) In this example, which way of expressing the values do you think is most effective? Why?

The power rating of a typical charger for a mobile phone is around _____, The power rating of a typical electric oven is _____. The output of a single generator in a power station is around _____.

	Mobile phone charger	Electric oven	Power station generator
1	5 W	3000 W	200 000 000 W
2	5 W	3 kW	200 MW
3	5 W	3×10^3 W	2×10^8 W