Sunburst

Large numbers can be described in either normal form or standard form.

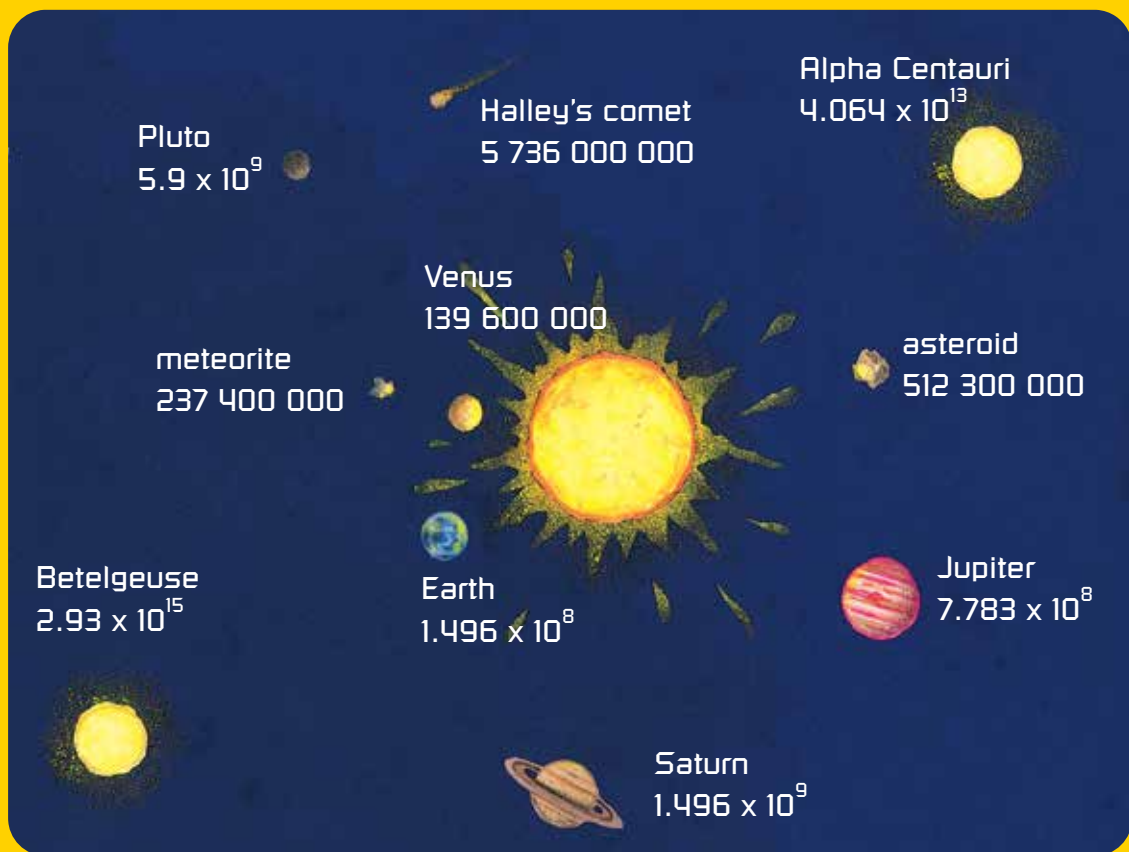| Normal form	Standard form
3 400	3.4×10^3

Imagine this scenario:

The year is 2160. The Sun sends a blast of radiation out in all directions that destroys all life in its path.

The diagram below shows the distance (in kilometres) from the Sun to several celestial bodies at the instant of the blast. The distances given are in either normal form or standard form. (Note that this diagram is not drawn to scale.)

Pluto
5.9×10^9

Halley's comet
5 736 000 000

Alpha Centauri
4.064×10^{13}

Venus
139 600 000

meteorite
237 400 000

asteroid
512 300 000

Betelgeuse
2.93×10^{15}

Earth
1.496×10^8

Jupiter
7.783×10^8

Saturn
1.496×10^9

1. List the celestial bodies in the order that the radiation will reach them.
   Give the distances in both standard and normal form.

2. The radiation is travelling at a speed of approximately 2.913×10^7 kilometres per hour but is no longer life threatening after 200 hours.

   Investigate and report on which of these or other celestial bodies could be possible destinations for the people on Earth in 2160 to escape to.