

Q1.(2022)

a)

The Earth is surrounded by an atmosphere.

The radius of the Earth is 6400 km.

Which of the following could be an approximate depth of the Earth's atmosphere?

[1 mark]

Tick (✓) **one** box.

100 km

☐

6400 km

☐

100 000 km

☐

640 000 km

☐

b)

What state of matter is most of the Earth's atmosphere?

[1 mark]

Tick (✓) **one** box.

Gas

☐

Liquid

☐

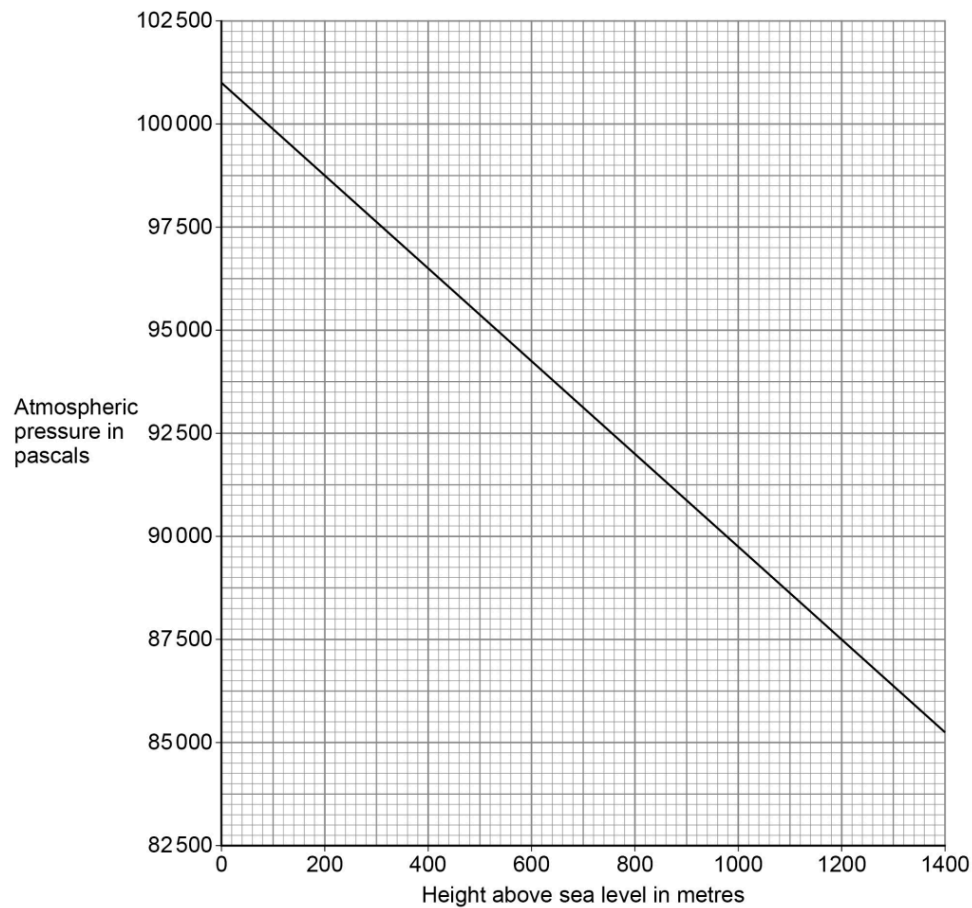
Solid

☐

c)

Figure 12 shows how atmospheric pressure varies with height above sea level.

Figure 12



The highest point above sea level in England is the top of a mountain called Scafell Pike.

The height above sea level of Scafell Pike is 978 m.

Determine the atmospheric pressure at the top of Scafell Pike.

Use **Figure 12**.

[1 mark]

Atmospheric pressure = _____ Pa

d)

Determine the difference between the atmospheric pressure at sea level and at the top of Scafell Pike.

Use **Figure 12** and your answer from Question **06.3**

[1 mark]

Difference in atmospheric pressure = _____ Pa

e)

A student climbs Scafell Pike.

Why does the atmospheric pressure decrease as the student climbs higher?

[2 marks]

Tick (✓) **two** boxes.

The air exerts a greater force on the student.

☐

The density of the air decreases.

☐

The mass of air above the student decreases.

☐

The temperature of the air increases.

☐

The volume of air above the student increases.

☐

Q1.f)(2022)

Figure 13 shows a mountain lake.

Figure 13



The lake has a surface area of 2000 m^2 .

Atmospheric pressure exerts a force of $188\,000\,000 \text{ N}$ on the surface of the lake.

Calculate the atmospheric pressure at the surface of the lake.

Use the equation:

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

[2 marks]

Atmospheric pressure = _____ Pa

Subtopic: Atmospheric pressure

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