

Ping Pong Balls On A School Bus

First find out the dimensions of a school bus.

Height: 9.5 ft

Width: 8 ft

Length: 40 ft

Now we can find the volume of the bus.

$$9.5\text{ft} * 8\text{ft} * 40\text{ft} = \mathbf{3040} \text{ cubic ft}$$

Now the volume of a ping pong ball

Volume of a sphere is $(4/3)*\pi*r^3$

Diameter of a ping pong ball is 40mm

Radius is half that at 20mm

$$\text{So } (4/3) * 3.14 * 20^3 = 33493 \text{ mm cubed}$$

Convert that to inches

$$33493 \text{ cubic mm} / 16387$$

2.044 cubic inches

Next step is to convert the volume of the bus to cubic inches

$$3040 \text{ cubic ft} * 1728 = \mathbf{5253120} \text{ cubic inches}$$

Now divide the volume of the bus by the volume of the ping pong ball

$$5253120 / 2.044 = \mathbf{2570019.57}$$

You can't have .57 of a ping pong ball so round down to **2,570,019** ping pong balls.

This number is in a bus with no seats.

So figure each seat part is 36 inches across 12 inches back and 6 inches thick.

$$36 * 12 * 6 = 2592 \text{ cubic inches for each part. As there is a seat and a back double that to } 5184 \text{ cubic inches.}$$

There about 30 seats on a school bus so 155520 cubic inches of seat.

Subtract that from the overall volume of the bus and get: 5097600 cubic inches

Again divide that by the volume of the ping pong ball

$$5097600 / 2.044 = \mathbf{2,493,933} \text{ ping pong balls}$$

So, after all that giving and taking some space on variables about **2.5 million ping pong balls will fill the school bus.**