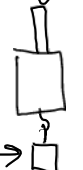


Jan 9.

Yesterday, we weighed an object:

1. out of water
2. In water

example



object →

out of water 2N
 in water 1.4N

Difference is the buoyant force = .6N

Also, water overflowed
 How much did it weigh? .6N

So ... if the buoyant force = .6N

(4th column) weight difference

labquest measured newtons scale measure grams

We converted

$$.6N \times 102 = 61.2g$$

Long version

$$\frac{.6N}{1} \left(\frac{1kg}{9.8N} \right) \left(\frac{1000g}{1kg} \right) = 61.2g$$

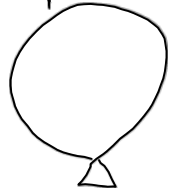
New material

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Balloons

Room
Temperature

$$\frac{5g}{150\text{cm}^3}$$



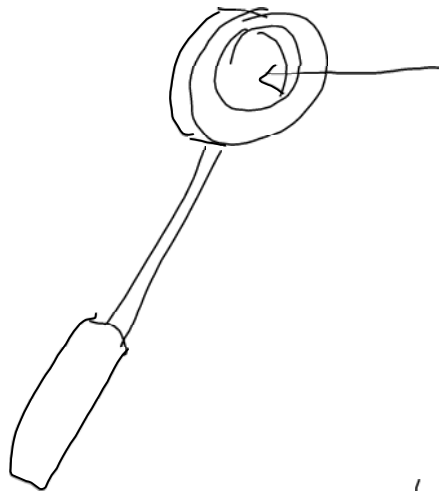
Freezer
Temperature

5g

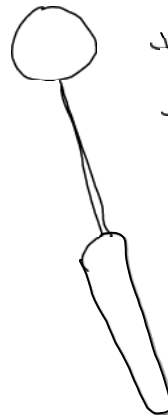
smaller

$$\frac{5g}{100\text{cm}^3}$$

Ball and Ring Demo

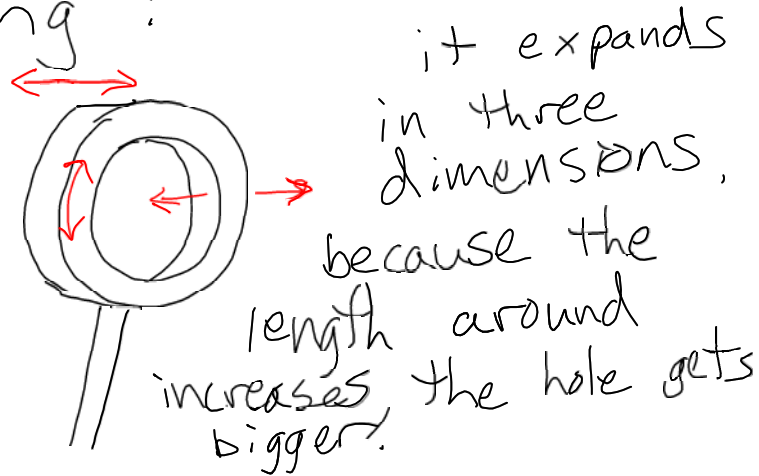


when cold,
the ball goes
through.

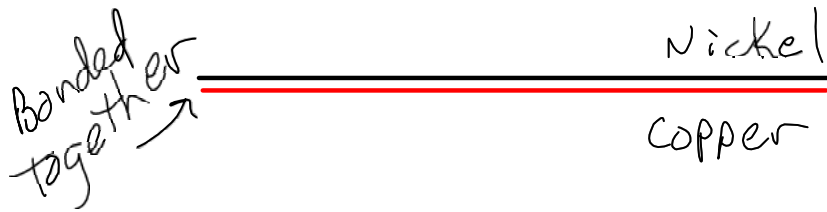


Heat the ball and it expands
and no longer fits.

once the ball is heated and too large to fit, what happens if I heat the ring?



Bimetals



When heated, the copper expands more than nickel and it curves.

