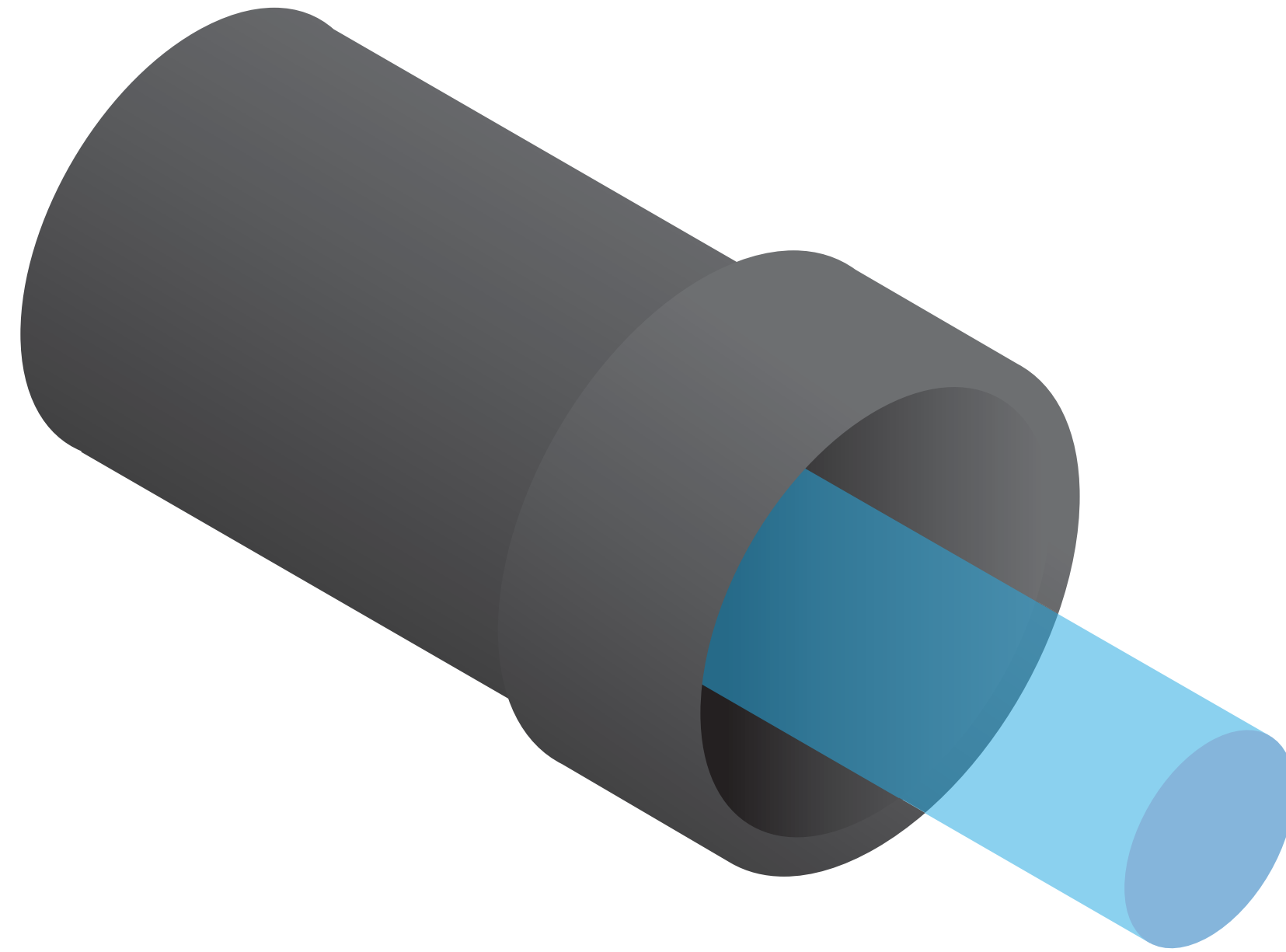


ANDY SHIMMIN

:01

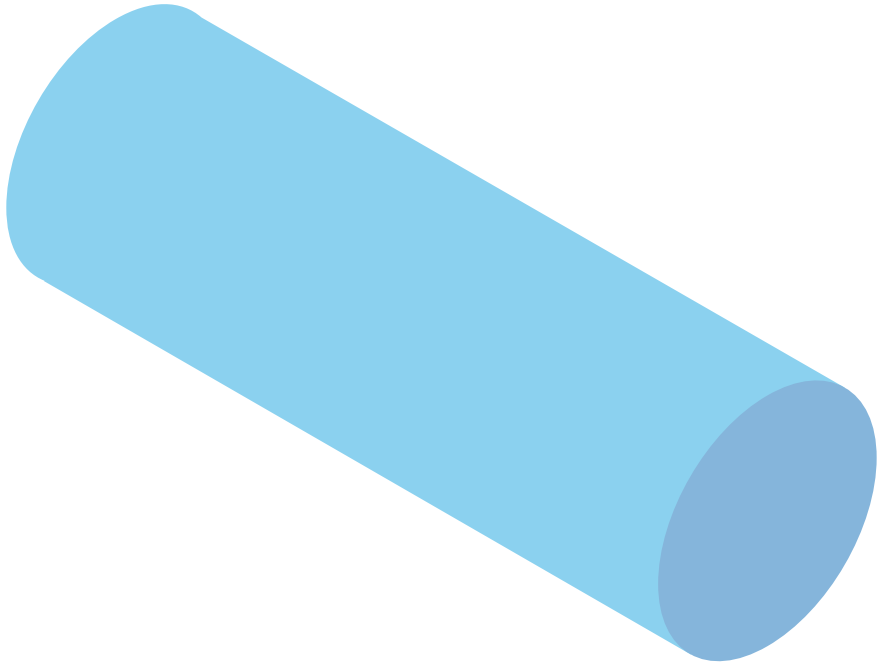
VOLTS, AMPS, OHMS, WATTS

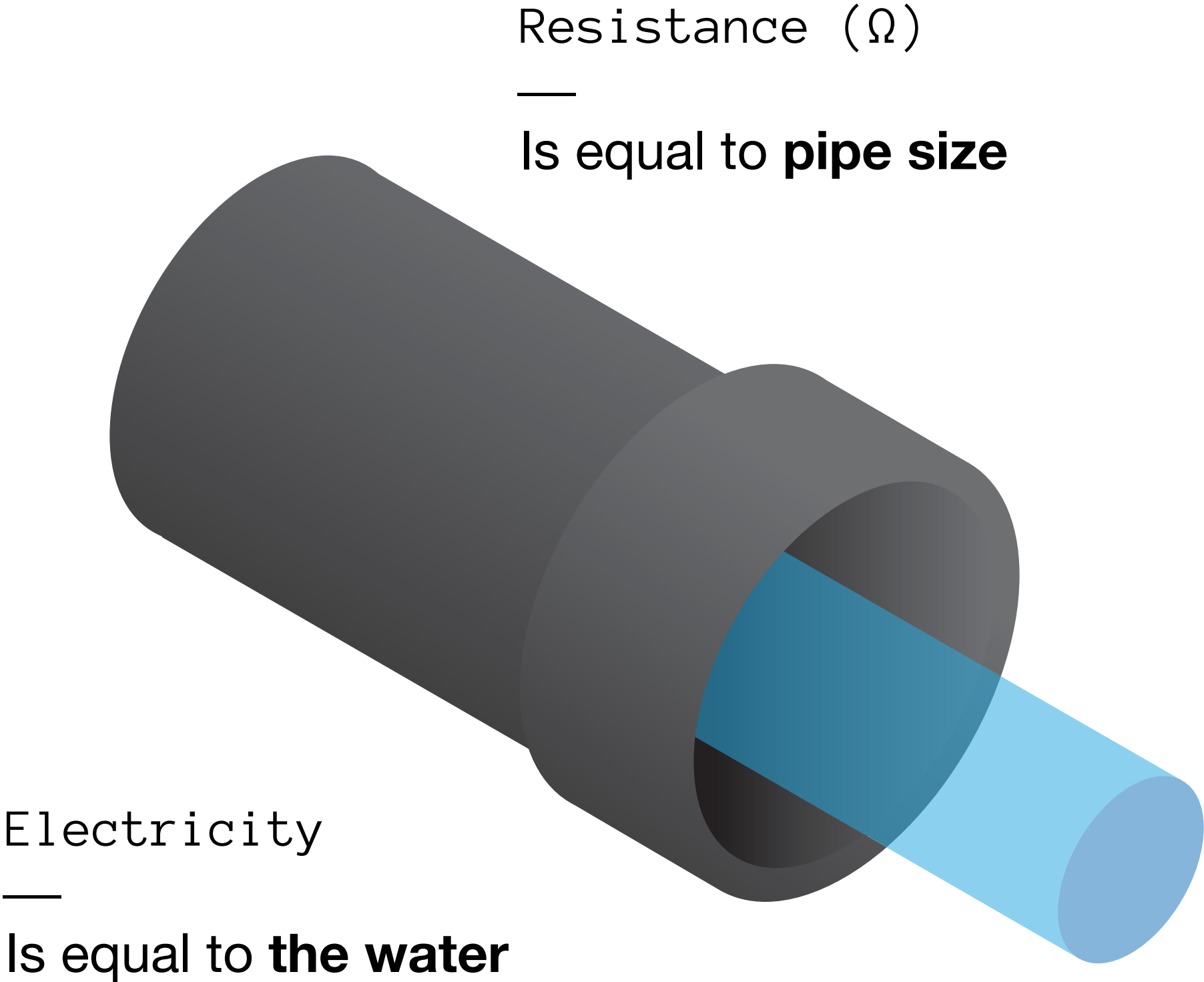


People like using the metaphor of a pipe with water to describe the differences between these 4 objects.

ANDY SHIMMIN
:01

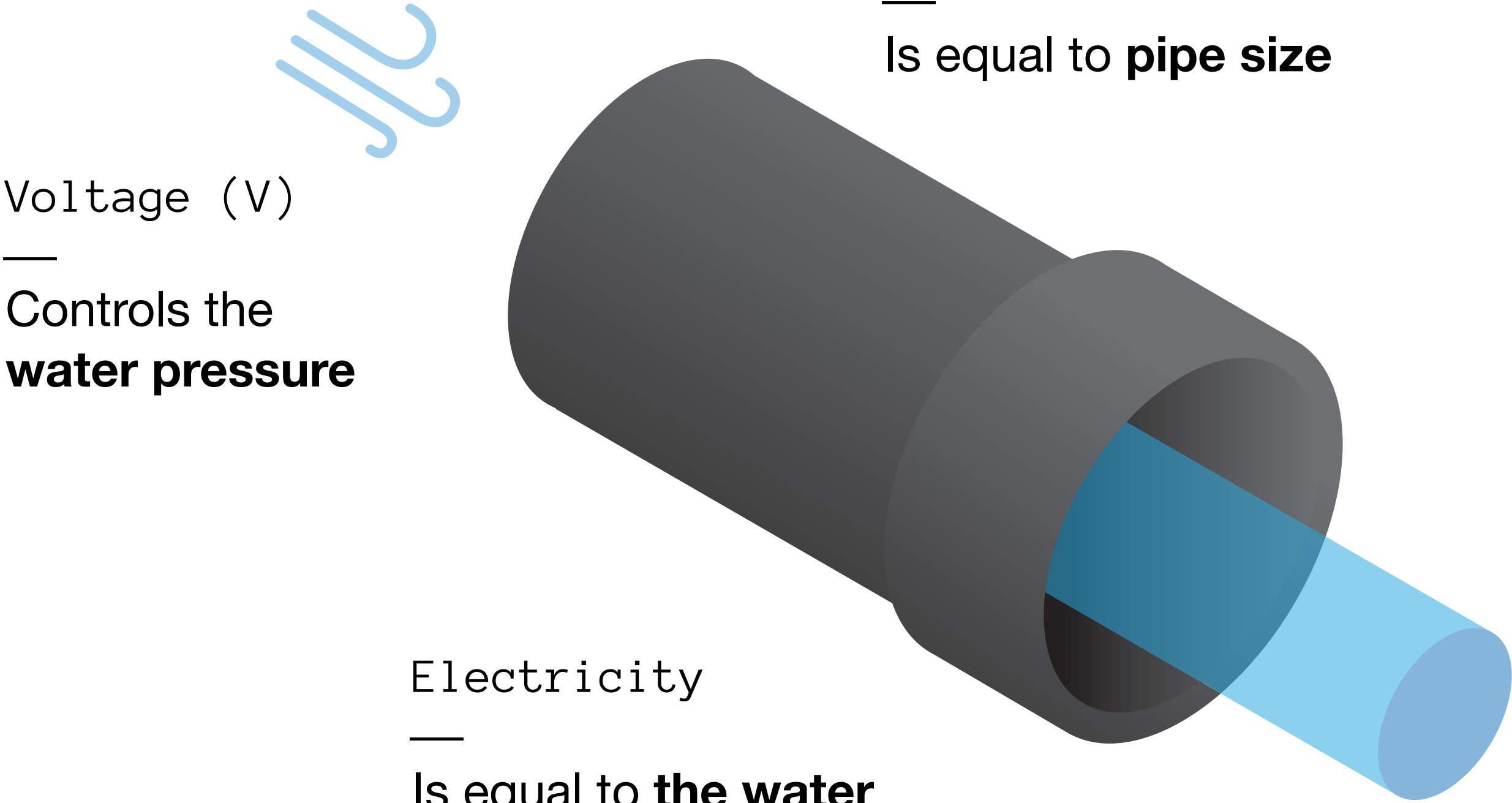
Electricity
—
Is equal to **the water**

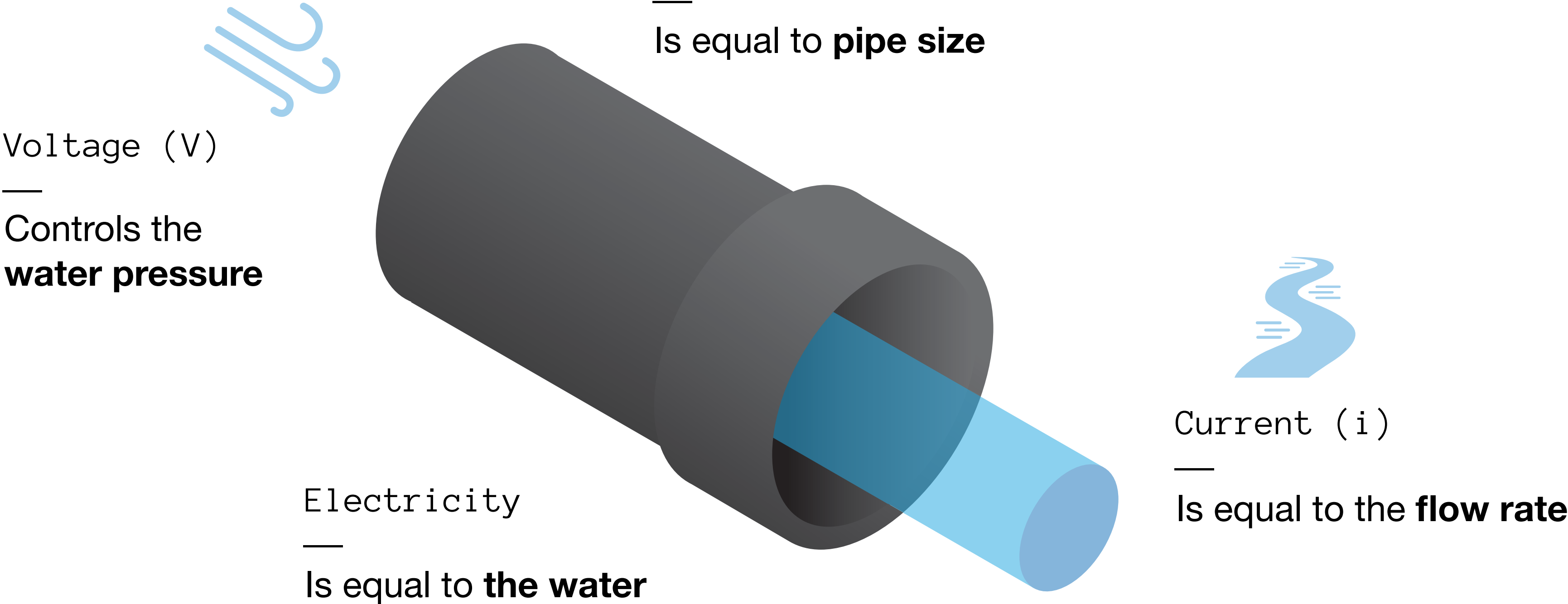




Resistance (Ω)
—
Is equal to **pipe size**

Electricity
—
Is equal to **the water**

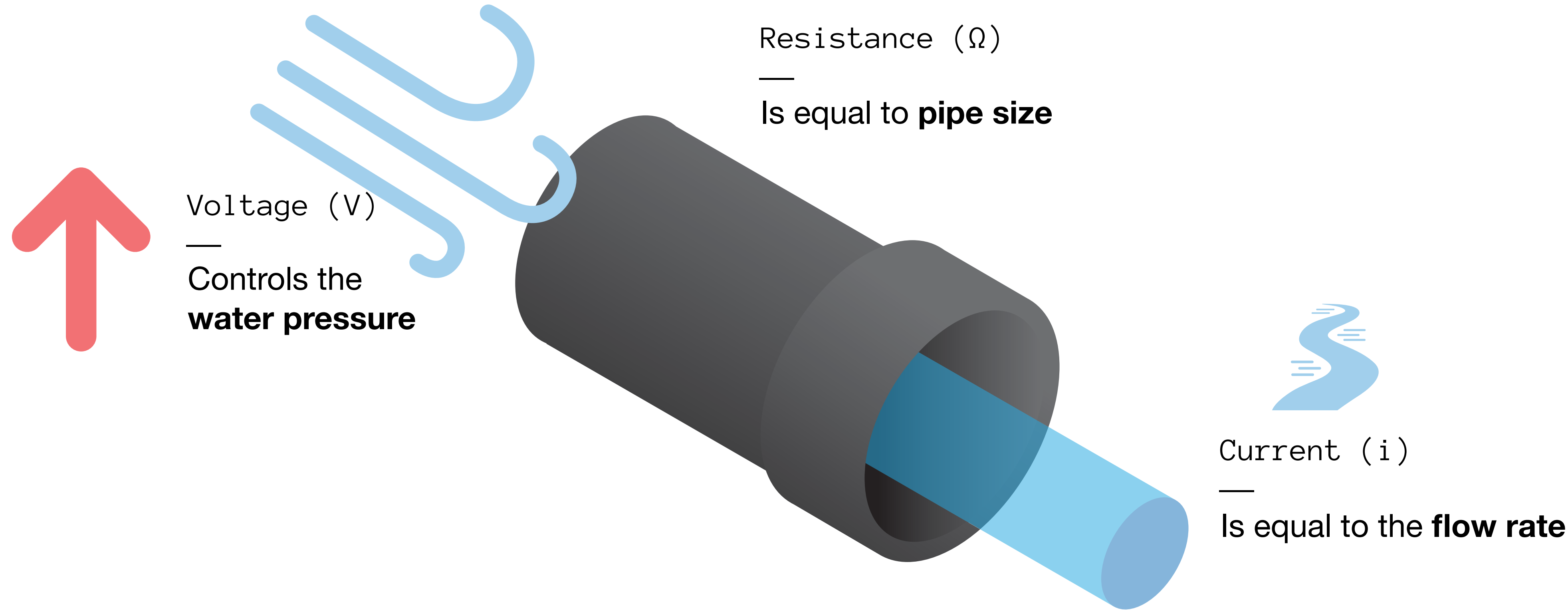




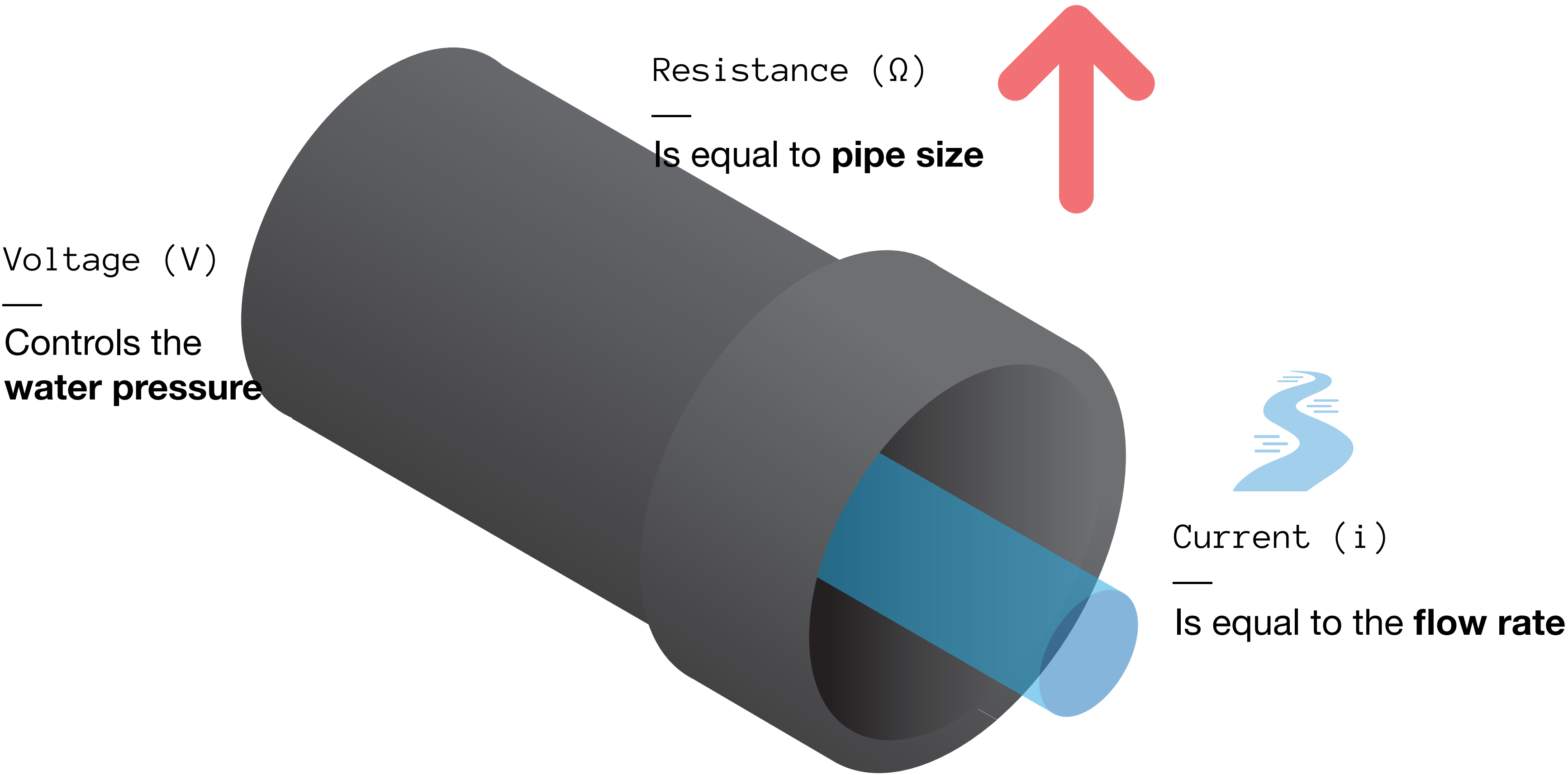
Ohm's Law

$$V = I * R$$

They all relate to each other with Ohms law, which says the pressure in the pipe is proportional to the rate of flow times the friction of the pipe.



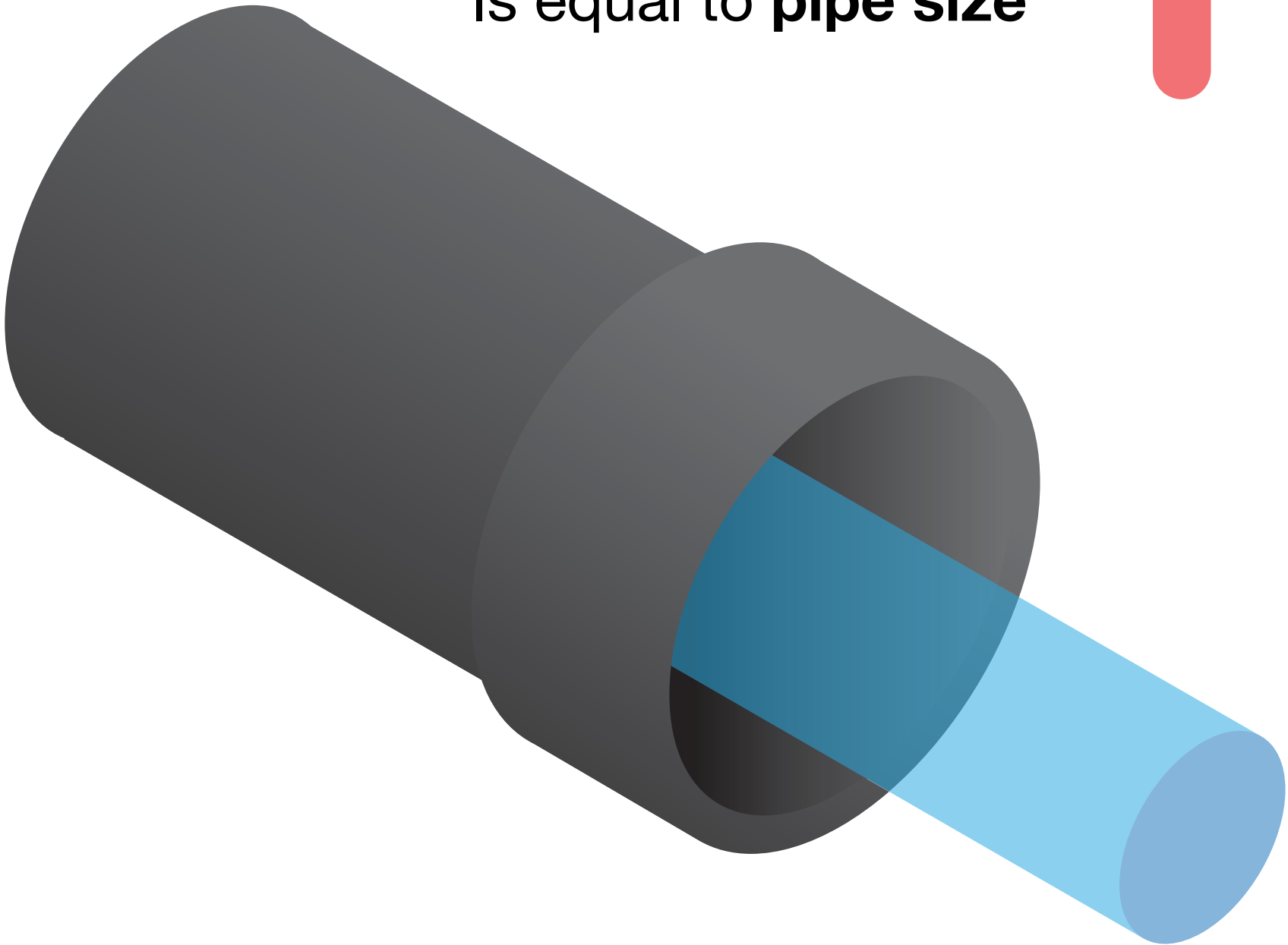
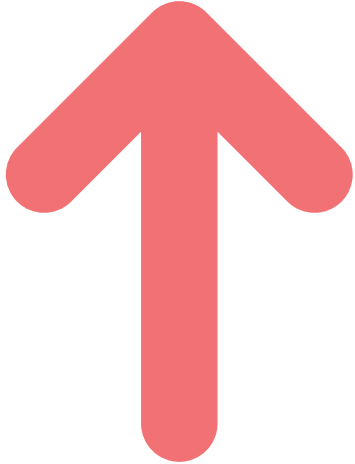
If you increase the voltage of an electrical system, just like water in a pipe, you'll produce more current



If you make the pipe bigger, you will also get more current.

Voltage (V)
—
Controls the
water pressure

Resistance (Ω)
—
Is equal to **pipe size**



Current (i)
—
Is equal to the **flow rate**

You can't really increase current without increasing something else to make that happen.

Ohm's Law

$$V = I * R$$

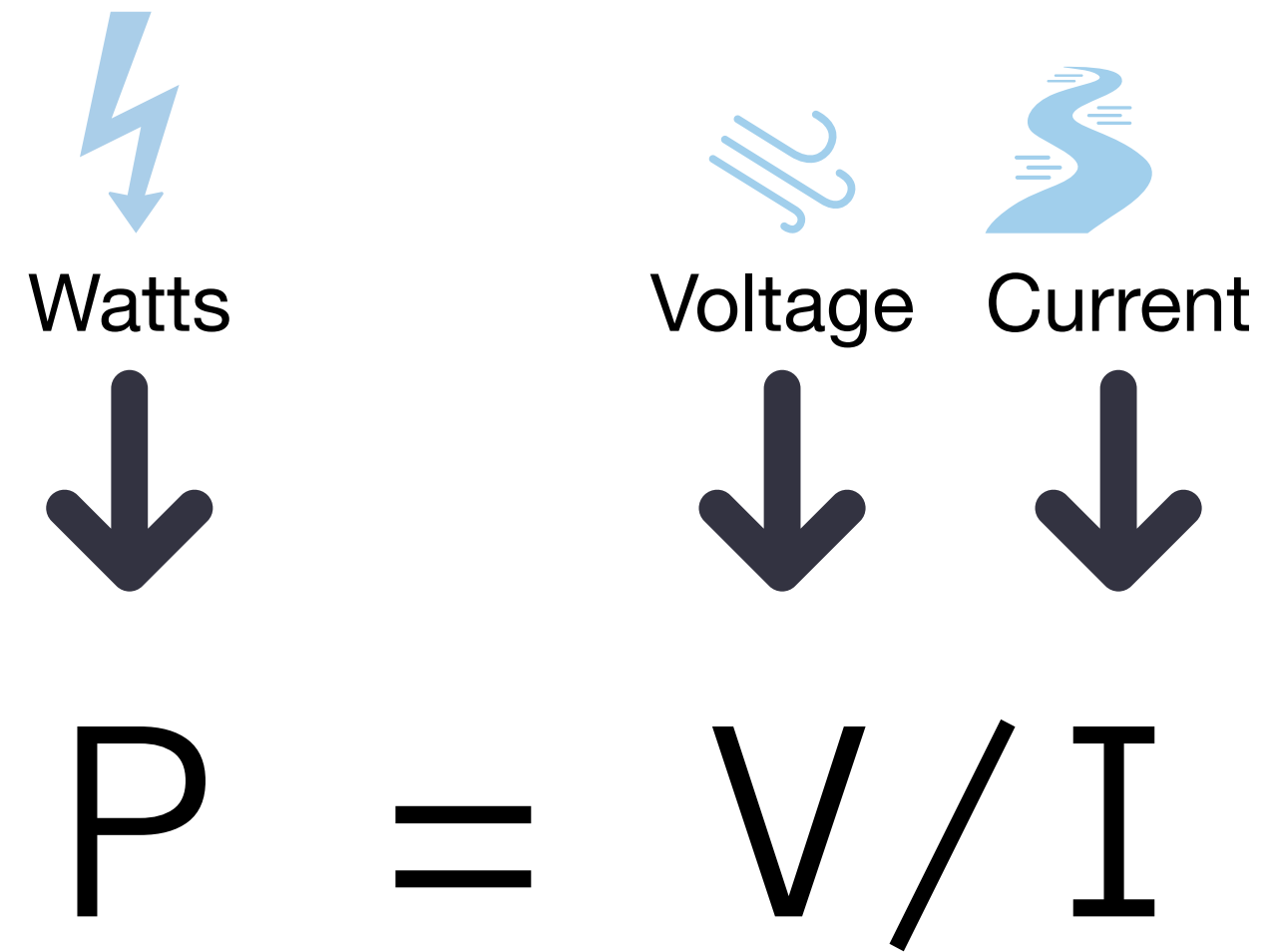


Watts



$$P = V / I$$

What about the electrical power produced from this? That's what Watts are. In physics, electrical power is a way of measuring energy expended over time.



Watts Voltage Current

↓ ↓ ↓

$$P = V / I$$

In an electrical system, increasing either the current or the voltage will result in higher power.



When you get shot with a taser, the current will flow through 2 contact points that are very close to each other. It will avoid any internal organs, so it won't cause much damage. (Your muscles will act as capacitors which means the flow may have a tendency to flow elsewhere as well)

Touching a live wire is different. When you enter an electrical room and touch an uninsulated high voltage cable, there's no telling where the current is gonna flow through. If you touch the cable with both hands, it will flow from 1 hand to the other, right through your chest. That can kill you so fast that you won't even notice you just touched a cable.

