

TUNNELWORKS

KS4 SCIENCE LESSON 2 WORKSHEET

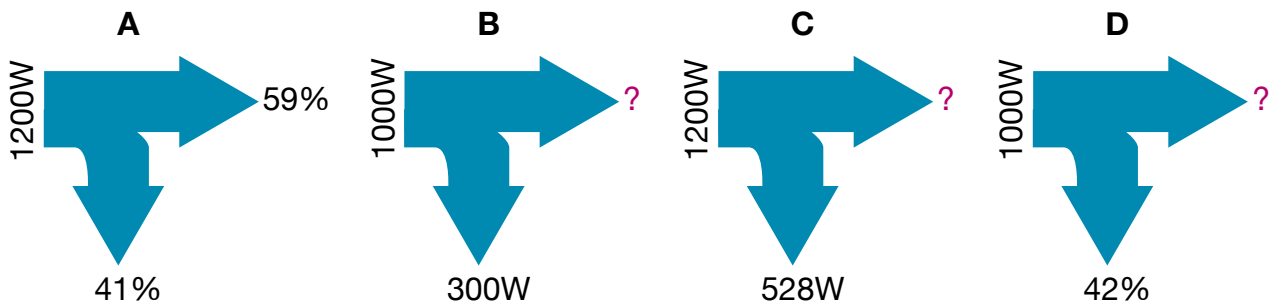
CLEAN AND FRESH: CIRCUITS AND ENERGY

Engineer's note:

Main ventilation points require a minimum of 4140W useful power provided by six fans. We need to provide this at minimum overall energy cost. The system will run on 240V. Each fan must be individually controlled, to vary ventilation power and allow maintenance.

Challenge 1: Which fan model?

Six fans must provide at least 4140W useful power. Choose the most efficient fan model that will meet this specification:



Challenge 2: What circuit?

Connect your six fans in a circuit that follows the engineering note above.

Draw your circuit here. Use  for a fan.

Challenge 3: What's the current?

The final engineering plans need to include circuit breakers that protect the ventilation circuit.

What current will one fan require? _____

What current will be needed for all six fans? _____

Select from this list the right circuit breakers to use in each case:

6A 8A 10A 13A 16A 20A 25A 32A 40A 50A 63A 80A 100A 125A