ASPIRE
INTERNATIONAL SCHOOL

Science Department

2023/2024

Year 8

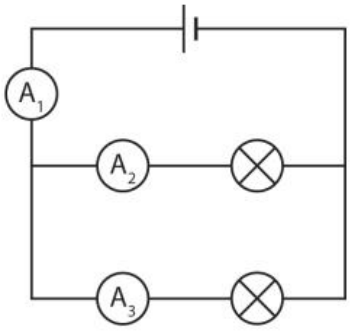
Term 3

Revision Pack T3

Name: …….

Class: ……

1- Look at the circuit diagram.



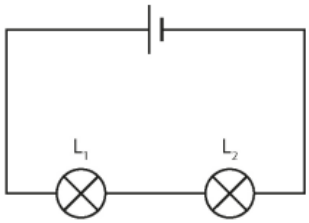
The two lamps in this circuit are identical.

The reading on ammeter A_1 is 5.0 A.

Calculate the readings on ammeters A_2 and A_3 **[2]**

.....

2- Look at the circuit diagram.



The sentences each contain choices of words. Underline the correct words in each sentence.

a To measure the current in the lamp, **an ammeter** / **a voltmeter** is connected **in series** / **in parallel** with the lamp. **[1]**

b To measure the voltage across the lamp, **an ammeter** / **a voltmeter** is connected **in series** / **in parallel** with the lamp. **[1]**

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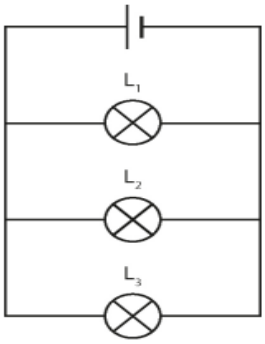
3-

Look at the circuit diagram.



The voltage across L_1 is 1.5 V.

State the voltage of the cell. **[1]**

_____ V

A current of 2 A flows through a 10 Ω resistor.

Calculate the voltage across the resistor. **[2]**

Show your working.

.....

4- In the space below, draw a circuit where:

- there is one cell
- a lamp and a buzzer can be switched on and off separately
- the brightness of the lamp can be varied **without** affecting the buzzer. **[3]**

5- In this activity, you will describe resistance.

1 Which of these is the unit of resistance?

Tick (✓) **one** box.

Π ☐

Θ ☐

O ☐

Ω ☐

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6- What effect does resistance have on current?

Tick (✓) **one** box.

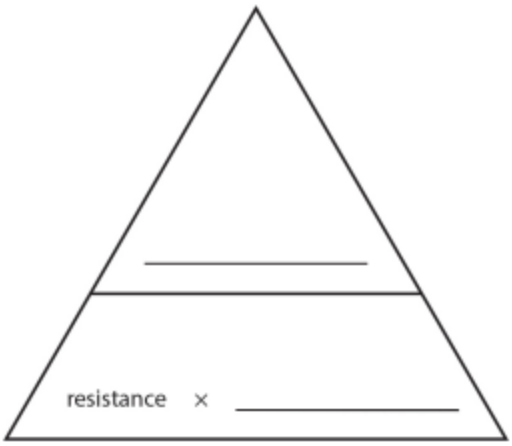
It makes it easier for current to flow. ☐

It makes it more difficult for current to flow. ☐

It makes the current stay the same. ☐

The effect cannot be predicted. ☐

7- Complete the formula triangle for resistance.



8- What law links resistance, voltage and current?

Tick (✓) **one** box.

Darwin's law ☐

Ohm's law ☐

Newton's law ☐

Joule's law ☐

9- A fixed resistor is connected in series with a battery. There are **no** other components in the circuit.

- The voltage of the battery is 6 V
- The current in the circuit is 2 A.

i Calculate the resistance of the fixed resistor.

Show your working and give the unit with your answer.

ii The battery is replaced with a 12 V battery.

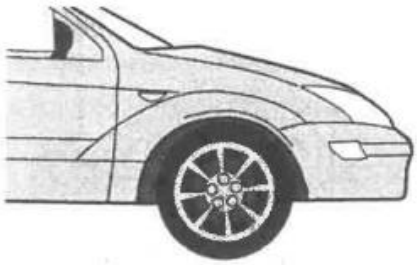
The value of the fixed resistor stays the same.

Calculate the current in the circuit with the 12 V battery.

Show your working and give the unit with your answer.

10- Car tyres are filled with air.

The air is at higher pressure than the air outside the tyre.



(a) Explain how the air exerts pressure on the inside surface of the tyre.

.....

.....

.....[2]

(b) When a car moves, the temperature of the tyres increases.

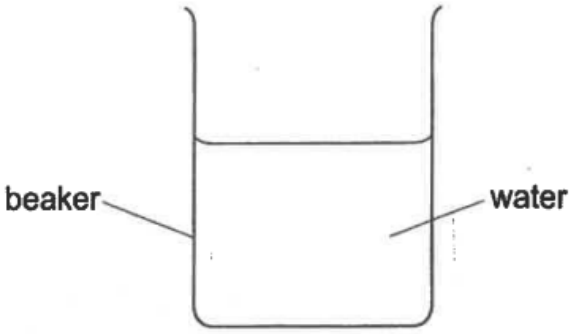
State what will happen to the pressure in the tyres **and** explain your answer.

The pressure will .....

because.....

.....[2]

11- The diagram shows a beaker containing some water.



(a) The depth of the water in the beaker is increased.

What effect does this have on the pressure on the base of the beaker?

..... [1]

(b) A beaker with a greater base area is filled to the same depth as the original beaker.

What effect does this have on the pressure on the base of the beaker?

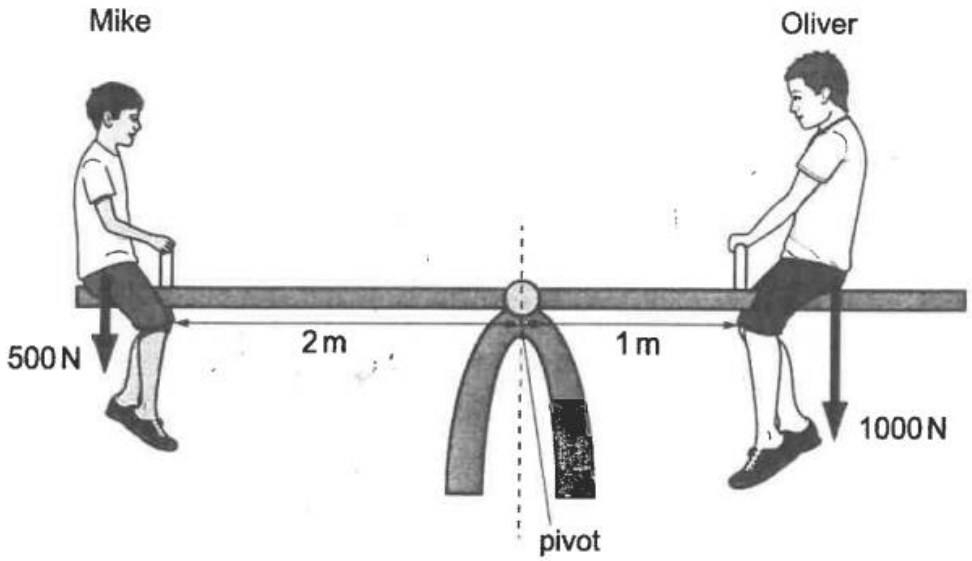
..... [1]

(c) The air exerts a pressure on the sides of the beaker.

What causes this pressure?

..... [1]

12- Mike and Oliver sit on a see-saw.



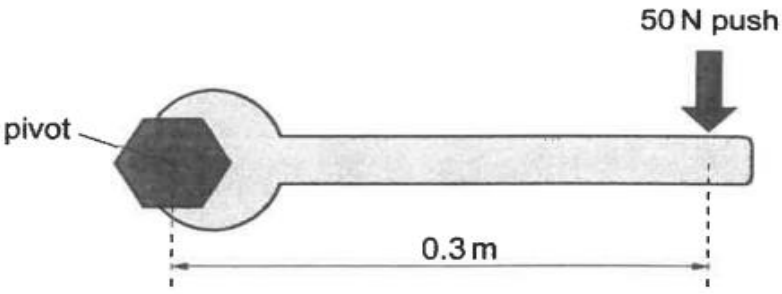
Mike is smaller than Oliver but the see-saw balances.

Explain why it balances, using the principle of moments.

.....

13- David uses a spanner to try to turn a bolt.

He pushes the spanner with a force of 50 N at a distance of 0.3 m from the pivot, as shown in the diagram.

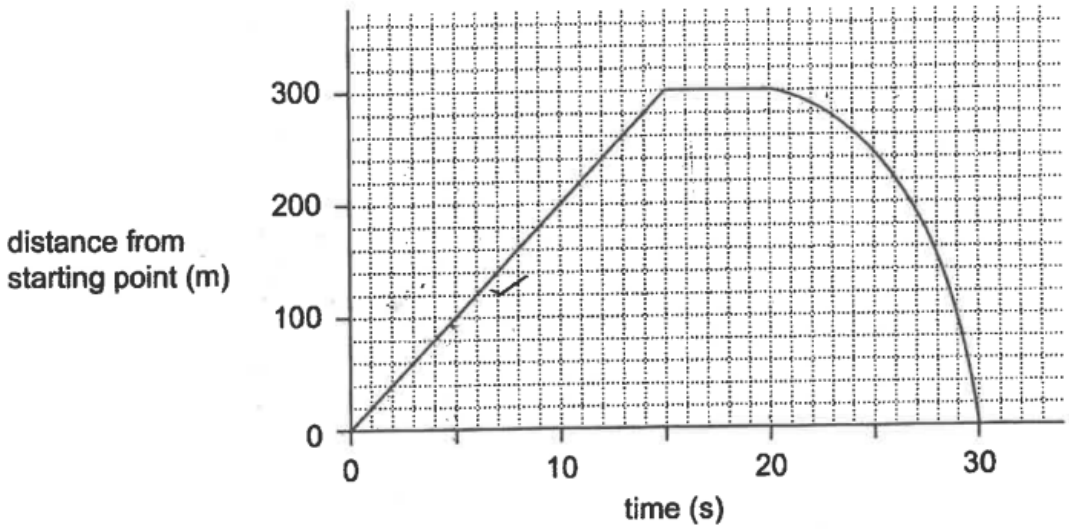


(i) Calculate the moment which results from this push on the spanner.

Show your working.

.....

14- The distance-time graph shows the movement of a car along a straight road after passing a particular point.



(a) Calculate the average speed during the time 0 to 15 s.
Show your working.

.....

[3]

(b) Describe what happens during the time 15 s to 20 s.

.....

[1]

(c) Where is the car after 30 s?

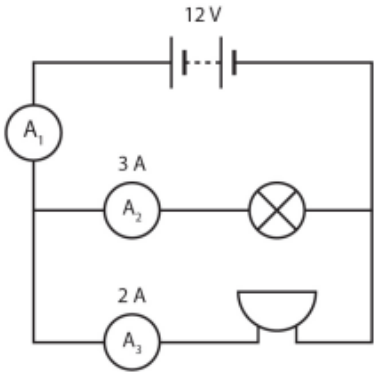
.....

[1]

(d) Compare the average speed from 20 s to 30 s with that in **(a)**.
Underline the correct answer.

faster **slower** **the same** [1]

15- Use this circuit to answer questions 1, 2 and 3.



1 Explain why this circuit is described as a parallel circuit.

_____

2 The current shown on ammeter A_1 is the current through the battery.

a Calculate the current shown on ammeter A_1.

Show your working.

_____ A

b Write an equation to calculate the current shown on ammeter A_1 from the currents shown on ammeters A_2 and A_3.

A_1 = _____

3 **a** State the voltage across the lamp.

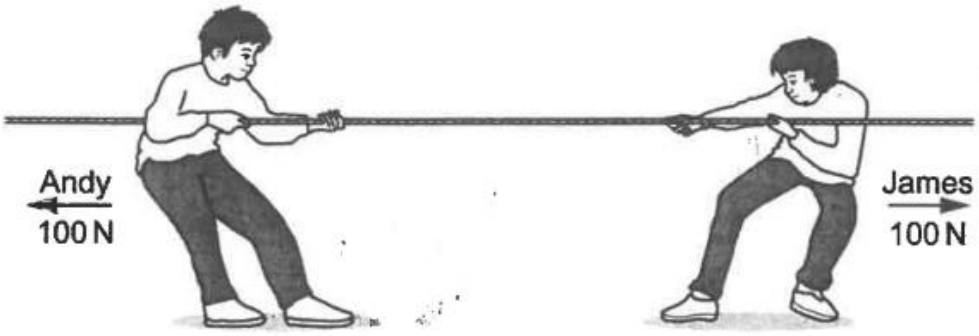
_____ V

b State the voltage across the buzzer.

_____ V

16- Andy and James are pulling on a rope.

The size and direction of their pulling forces are shown.



(a) The rope does **not** move toward Andy or James.

Explain why the rope does **not** move.

.....

.....

(b) Andy keeps pulling with the same force of 100 N.

The rope now starts to move towards him.

What must have happened to the pulling force from James?

.....

.....[1]