

## PREP 5 • LESSONS 9–10

# I–V investigations and sensors

Investigating I–V characteristics (required practical) • thermistors, LDRs and sensing circuits

SCORE  
/10

Name \_\_\_\_\_ Class \_\_\_\_\_ Due \_\_\_\_\_

**Do Now** REMEMBER

From earlier lessons • 1 mark each

1 Explain why the resistance of a filament lamp increases with current. [1]

2 State the function of a diode. [1]

3 Describe the total resistance of two resistors connected in parallel. [1]

**Key ideas** LESSONS 9–10

Show your working

4 A student finds the I–V characteristic of a lamp.  
a Name the independent and dependent variables. [1]

b State why a variable resistor is included in the circuit. [1]

c Explain why the student reverses the connections to the lamp. [1]

5 As the temperature of a thermistor increases, its resistance 

|           |           |                |
|-----------|-----------|----------------|
| increases | decreases | stays the same |
|-----------|-----------|----------------|

 [1]

6 In the dark, the resistance of an LDR is 

|      |     |
|------|-----|
| high | low |
|------|-----|

 [1]

7 A thermistor is connected in series with a fixed resistor and a battery. The circuit switches on a fan when the room gets hot.  
Explain what happens to the current in the thermistor as the room warms up. [2]