DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department of Curriculum Management
Educational Assessment Unit

Annual Examinations for Secondary Schools 2015

Core Curriculum Programme

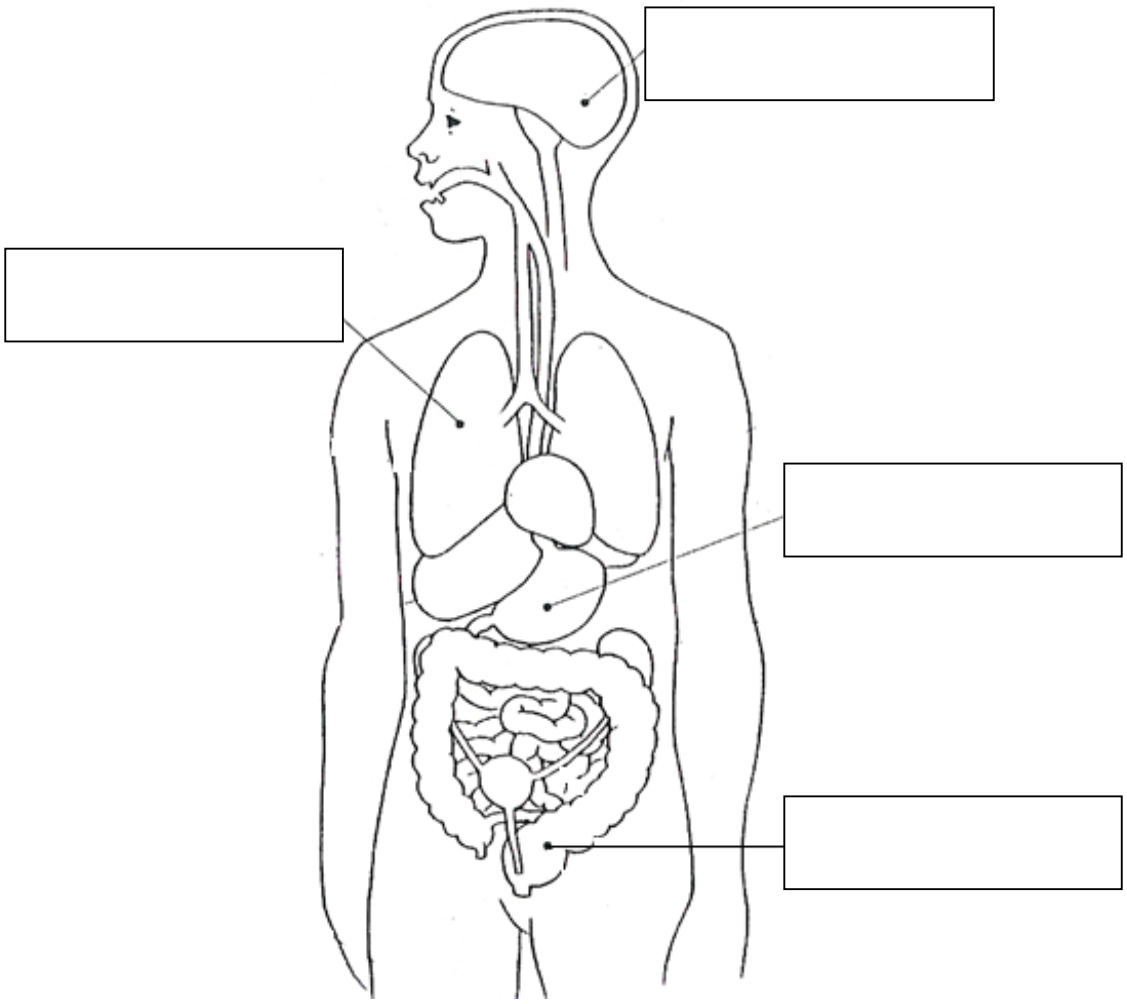
FORM 4 SCIENCE/DESIGN & TECHNOLOGY TIME: 1 hour

NAME: _____ **CLASS: _____**

Answer ALL questions. (This paper is out of 30 marks.)

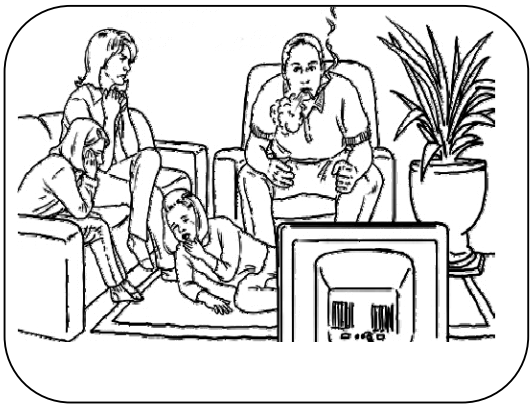
1. Place the **four** body organs in the box below in their correct position.

stomach	**lung**	**brain**	**intestine**



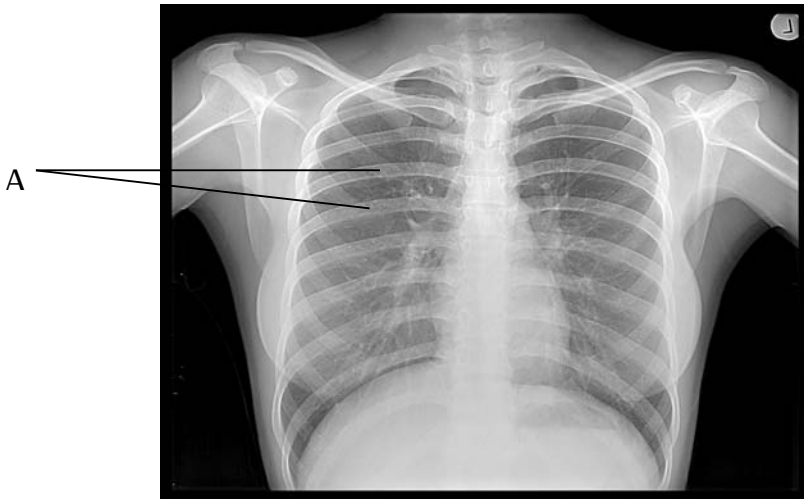
(0.5 x 4 = 2 marks)

2. The pictures below show bad habits in our lifestyle. MATCH the picture to the correct sentence.

PICTURE	**SENTENCE**
	Fatty foods and lack of exercise cause fatness.
	A cigarette a day increases the risk of heart disease.
	I cannot walk in a straight line.

(3 marks)

3. The picture below shows a chest X-ray.



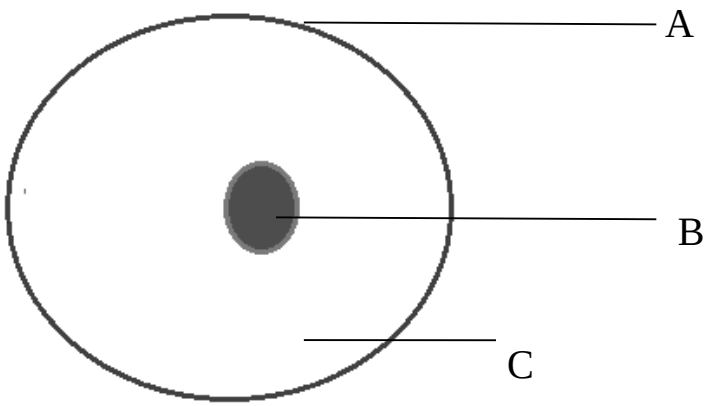
a. NAME the bones labelled A. _____ (1 mark)

b. STATE **one** function of these bones in your chest.

_____

(1 mark)

4. The diagram shows an animal cell.



a. Which of the following is structure A?

NUCLEUS **CYTOPLASM** **CELL MEMBRANE**

_____

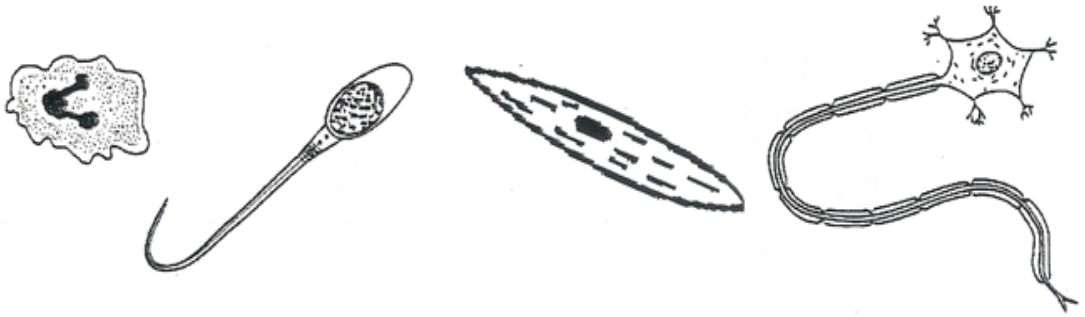
(1 mark)

b. Give the function of structure B.

_____

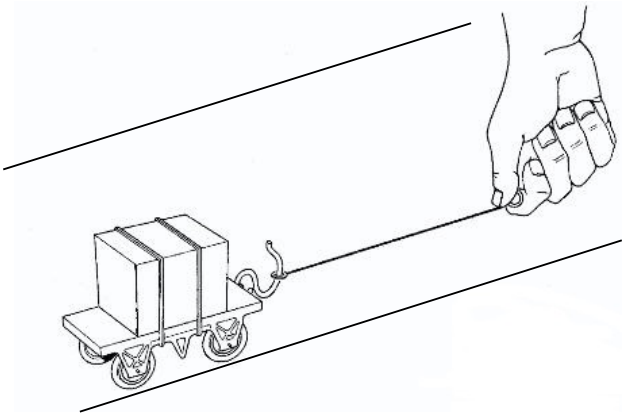
(1 mark)

5. The diagram below shows a number of specialised cells. CIRCLE the sperm cell (spermatozoon).



(1 mark)

6. James is pulling a model cart with a light string.



a. On the diagram, MARK with an **X** any **two** points where friction is acting on the cart.

(0.5 x 2 = 1 mark)

b. From the list below, TICK (✓) the correct statements that indicate how friction between any two objects that are in contact can be decreased.

Statement	**Correct**
Applying oil	
Paint one of the surfaces	
Smoothing surfaces	

(0.5 x 2 = 1 mark)

c. The speed of the cart will increase. STATE **two** physical quantities that are needed to calculate the speed of the cart.

_____ and _____

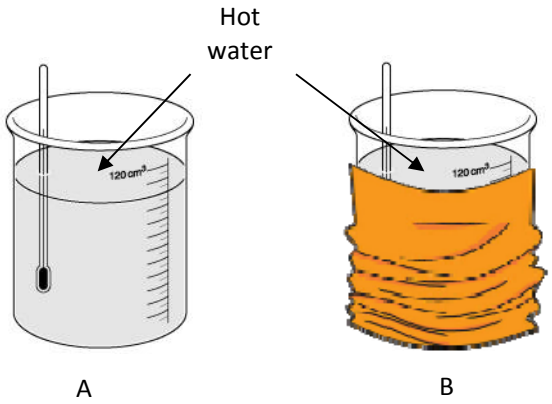
(0.5 x 2 = 1 mark)

7. The pictures below show two renewable sources of energy. For each source, CIRCLE the correct input and output energies.

Input energy	**Device**	**Output Energy**
Light Chemical Wind		Electrical Sound Light
Elastic Sound Light		Wind Electrical Chemical

(0.5 x 4 = 2 marks)

8. The diagram shows two beakers containing hot water.



a. What is the name of the instrument used to measure temperature?

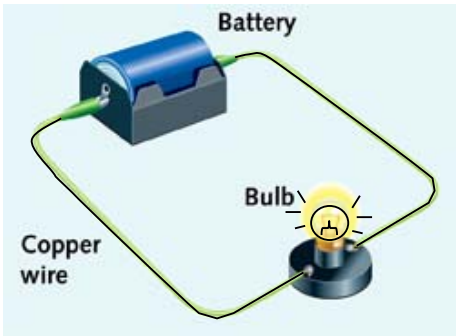
_____

b. UNDERLINE the correct answer:

Beaker A will take (more, less) time to cool than Beaker B.

(0.5 x 2 = 1 mark)

9. The diagram below shows a bulb connected to a battery in a circuit.



a. What component should we add to the circuit to be able to turn the bulb on and off?

_____

(1 mark)

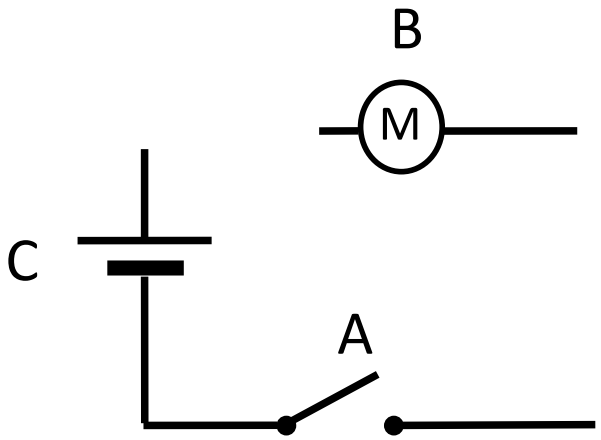
b. MARK (✓) True or False the following statements.

Statement	True	False
Wires are usually made up of copper.		
Copper is not a good conductor of electricity.		
Fuses prevent overheating of the wires in case of a short circuit.		

(3 marks)

10. The diagram below shows an incomplete electronic circuit.

a. NAME the electronic component labelled 'A': _____ (1 mark)

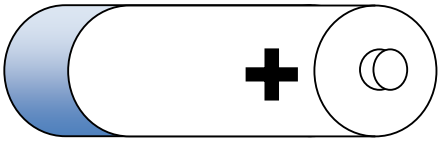


b. COMPLETE this electronic circuit by drawing the missing connections so that component B can function. (2 marks)

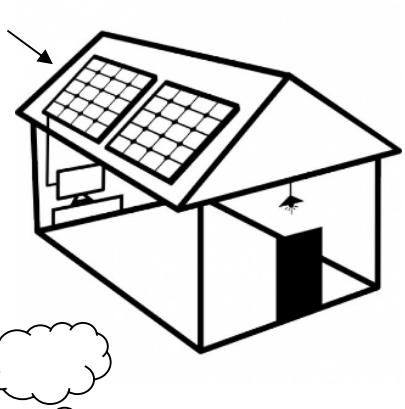
c. NAME the component that provides electric power in the circuit above.

_____(1 mark)

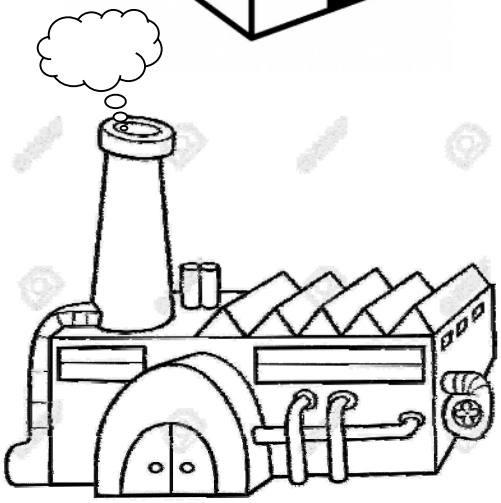
11. Use lines to MATCH the pictures on the left with the correct name on the right.



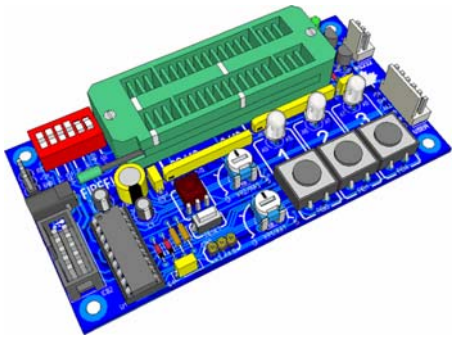
Solar powered Photovoltaic panels



Electronic circuit



Battery or Cell

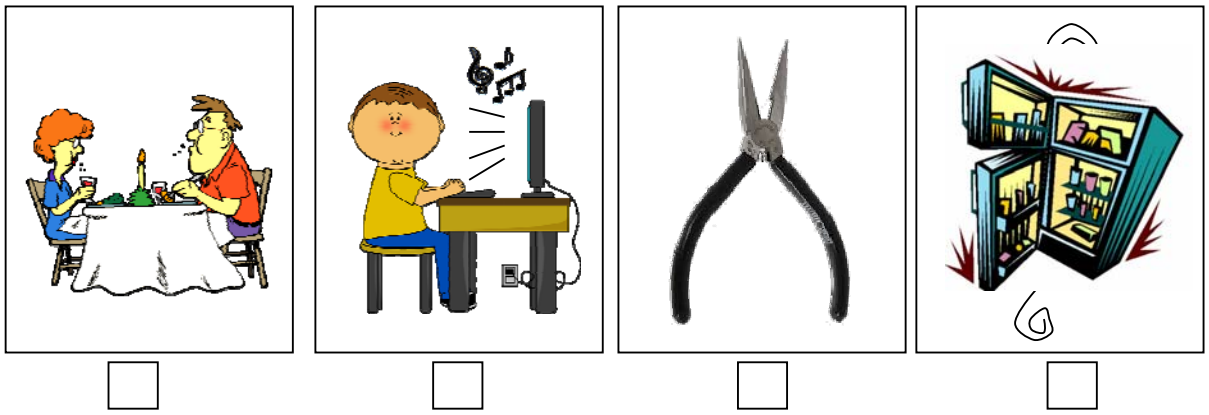


Power Station Plant

(2 marks)

12. Electric power is an essential part of our everyday life.

a. TICK (✓) the pictures that show objects that always need electric power to work.



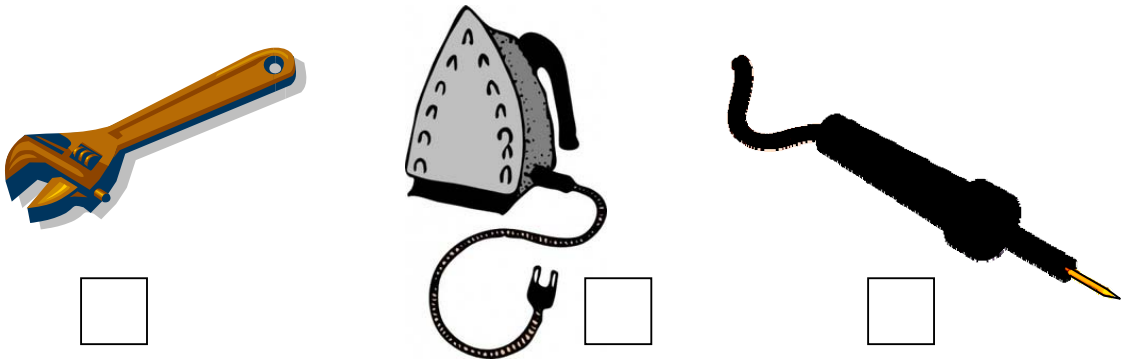
(1 mark)

b. NAME the object that, in the pictures above, is wasting electric energy for nothing.

_____ (1 mark)

13. To build a circuit you need tools to connect components and wires together.

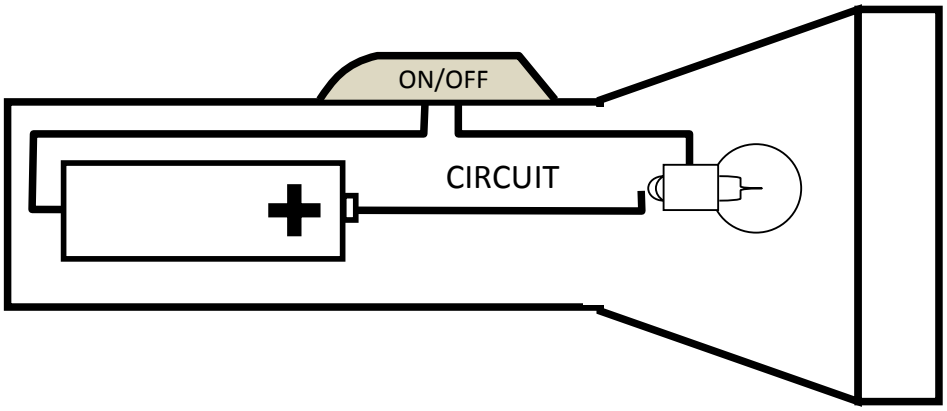
a. TICK (✓) the right tool to use to solder electronic components.



b. MENTION **one** safety precaution you can take when using this tool.

_____(0.5 x 2 = 1 mark)

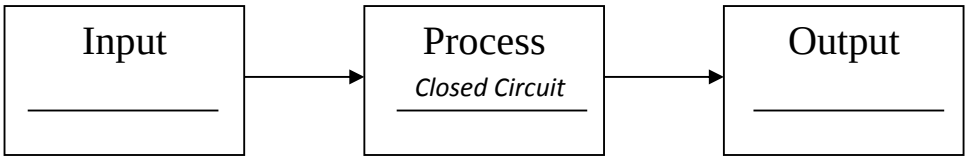
14. In an electric torch you can find a circuit layout similar to the one shown below.



Put the following keywords in the correct part of the SYSTEM BLOCK DIAGRAM.

(One example has already been done for you.)

~~Closed Circu~~it, Bulb, Switch



(0.5 x 2 = 1 mark)