

Name:
Science Class:
Teacher:
Hand in day:

Y9 Science

Term 2 Homework Booklet

Biology

	Hand in Date	Parents Signature
Homeostasis		
Homework 1		
Homework 2		
Homework 3		

Homeostasis Homework 1:

Comprehension Task

Homeostasis

The conditions inside our body must be very carefully controlled if the body is to function effectively. **Homeostasis** is the maintenance of a **constant internal environment**. The **nervous system** and **hormones** are responsible for this.

Here are some examples of internal conditions that are regulated:

Body temperature

This is controlled to maintain the temperature at which the **body's enzymes work best**, which is usually 37°C. If you become too hot or too cold, there are ways in which your body temperature can be controlled.

When we get too hot:

- **Sweat glands** in the skin release more sweat.
- Blood vessels leading to the skin capillaries become wider - they **dilate** - allowing more blood to flow through the skin, and more heat to be lost.

When we get too cold:

- Muscles contract rapidly - we **shiver**.
- **Blood vessels** leading to the skin capillaries become narrower - they constrict - letting less blood flow through the skin and conserving heat in the body.

Blood sugar level

This is controlled to provide cells with a constant supply of glucose for respiration. It is controlled by the release and storage of glucose, which is in turn controlled by the hormone **insulin**.

Diabetes is a condition in which the **blood glucose levels remain too high**. It can be treated by injecting insulin.

Water content

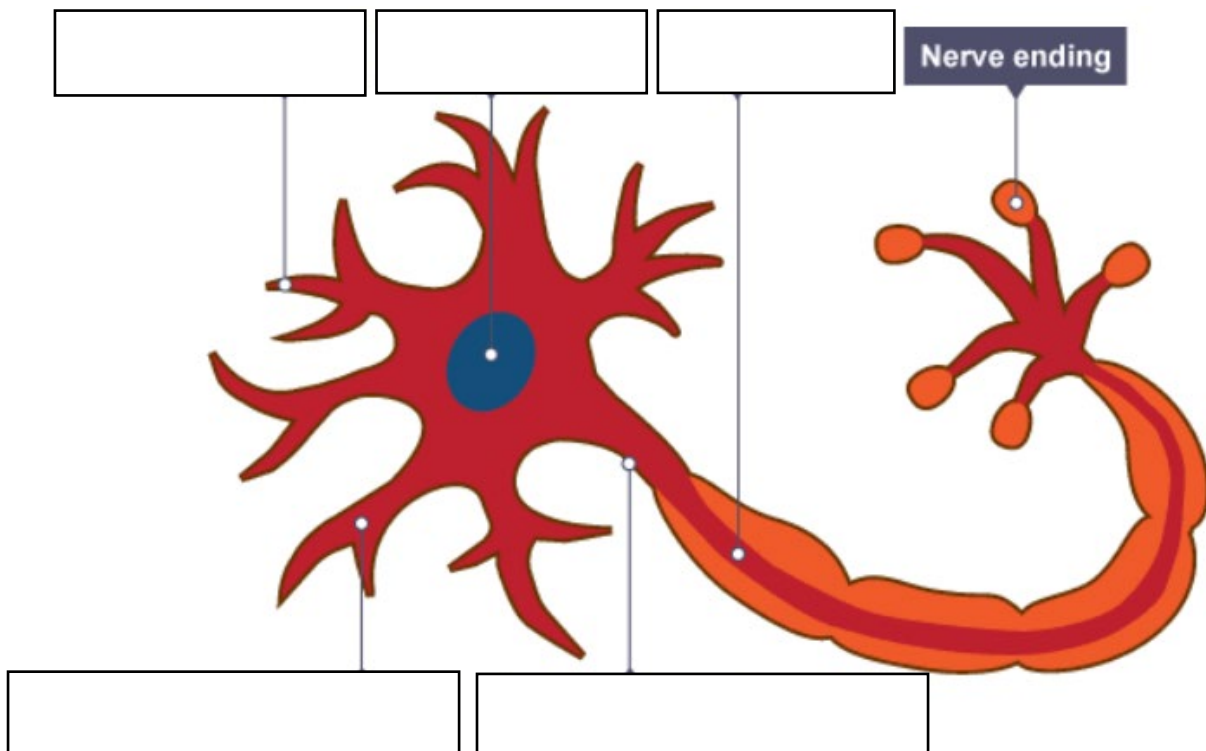
This is controlled to protect cells by stopping too much water from entering or leaving them. Water content is controlled by water loss from:

- the lungs - when we exhale
- the skin - by sweating
- the body - in urine produced by the kidneys

Questions

1. What is homeostasis?
2. At what temperature do the body's enzymes work best at?
3. What mechanisms does the body use to cool us down?
4. What mechanisms does the body use to warm us up?
5. Why do blood sugar levels need to be controlled?
6. Which hormone controls blood sugar levels?
7. What is diabetes?
8. How can diabetes be treated?
9. Why is it important to control water content?
10. List three ways in which we lose water:

Homeostasis Homework 2:



1. Use the following terms to label the nerve cell:

Nucleus, axon, cell membrane, dendrite, axon

2. Describe the role of each part of the cell in the table below:

Part	Role
Nucleus	
Axon	
Cell Membrane	
Dendrite	

The way our nervous system works can be summed up as:

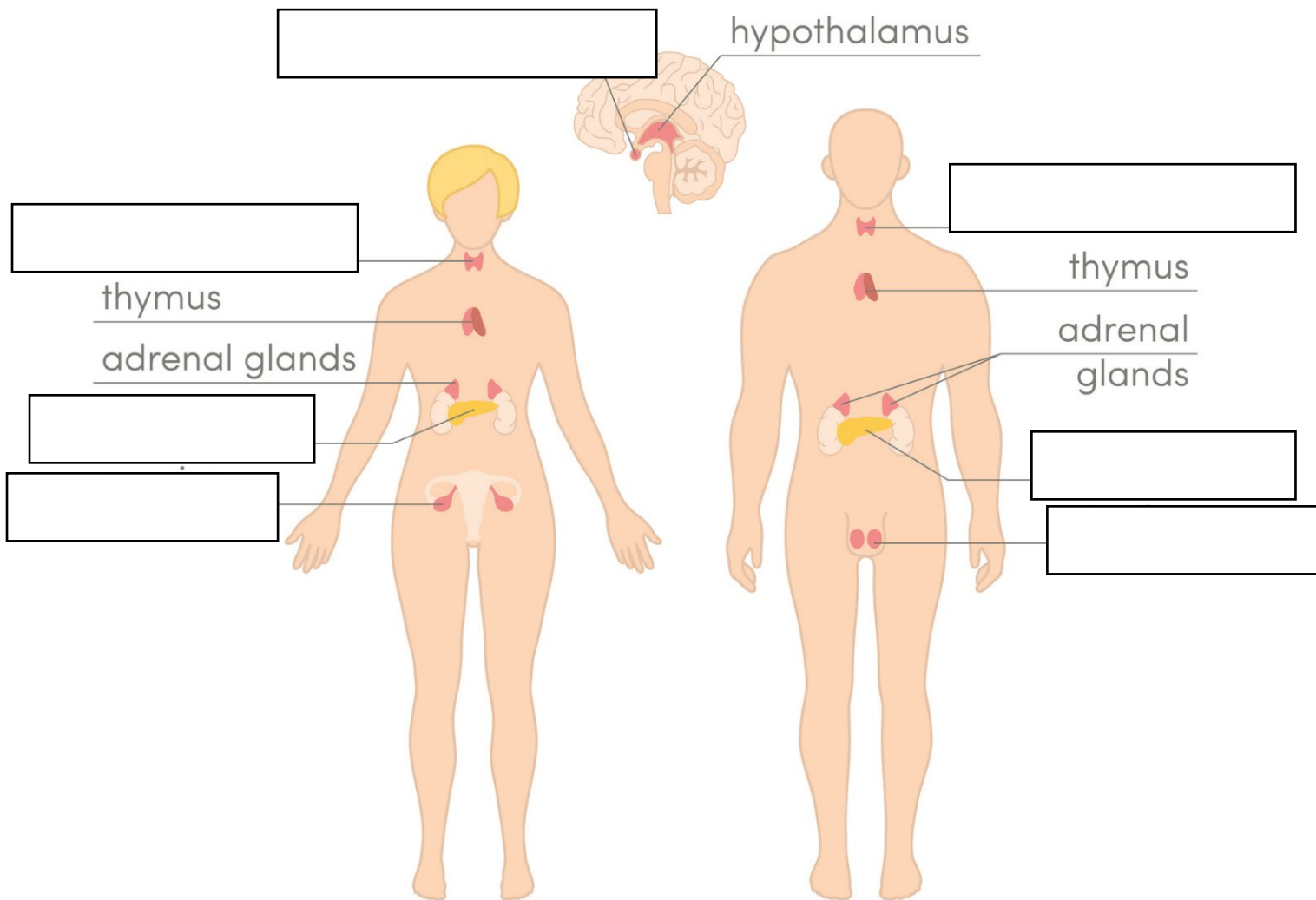


3. Complete the table to define the key terms.

Key Term	Definition
Stimulus	
Receptor	
Coordinator	
Effector	
Response	

Homeostasis Homework 3:

1. Label the endocrine glands and organs on the diagram.



2. Answer the questions below:

a) What is the name of the hormone that is responsible from removing glucose from the blood?

b) Where is this hormone made?

c) What is the name of the medical condition for someone that does not produce enough insulin?

d) Describe the test you would perform to test for glucose in food:

Key words to include:

Benedicts Solution Test Tube Water Bath Pipette Blue Brick Red

e) The ovaries and testes are endocrine glands. Name the hormone each of these glands produce:

Ovaries: _____

Testes: _____

f) The hormones produced by the endocrine glands are responsible for changes that take place during puberty.

List some changes that take place during puberty in the table below:

Males	Females