

**Unit 3 KA1: Divisions of the Nervous System**

2 types neurons found in somatic nervous system

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Give an example of a voluntary response

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Which **region** of the nervous system **controls voluntary responses**?

Which **region** of the nervous system **controls involuntary responses**?

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Describe the **impact of the sympathetic and parasympathetic responses** on:

	Sympathetic	Parasympathetic
Heart Rate		
Breathing Rate		
Peristalsis & Intestinal Secretions		

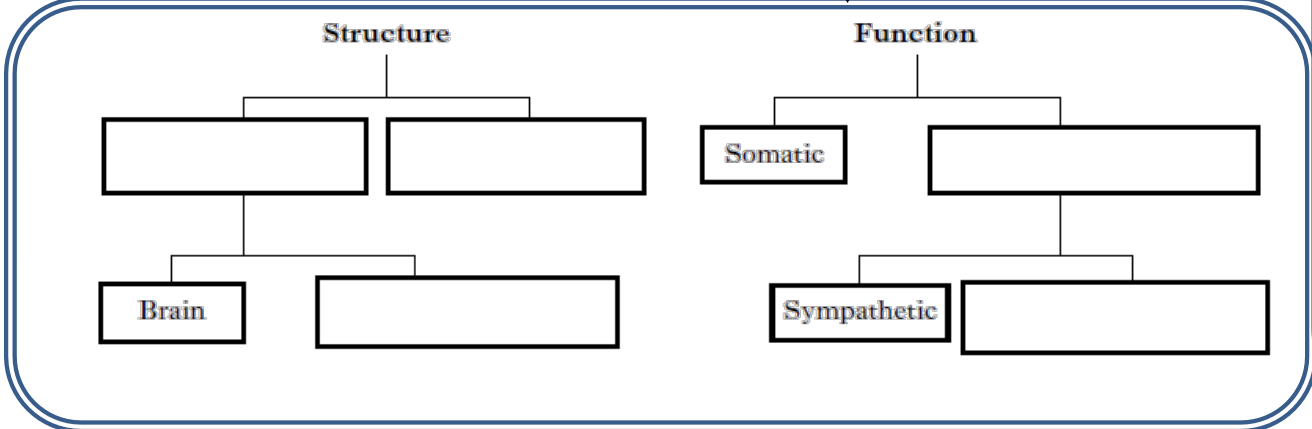
Draw a diagram to illustrate the three types of neural pathways:

Converging

Diverging

Reverberating

Complete the diagram showing the **structural and functional divisions** of the **nervous system**.



*Unit 3 KA2: The cerebral cortex*

What does the phrase 'localisation of function' mean?

Number of cerebral hemispheres which exist in the brain

What allows information to pass between the cerebral hemispheres?

Sketch a **diagram of the brain** labelling the sensory, motor and association areas of the **cerebral cortex (cerebrum)**

Some **brain functions** are **localised to particular areas** of the **cerebral cortex**. Describe what is processed in:

**Sensory Areas –**

**Motor Areas –**

**Association Areas -**

	Length of storage of information	Capacity
STM		
LTM		

STM:  
LTM:

Memory involves 3 processes

1. E
2. S
3. R

Meanings of abbreviations

3 levels of memory:

- 1.
- 2.
- 3.

**Unit 3 KA3: Memory**

Comparison of STM and LTM

Information can be transferred from the SMT to LTM in three ways.

- R
- O
- E

Give an example of chunking

Describe the serial position effect

Memory span of STM

What does sensory memory retain?

Retrieval of memories can be aided by:

D \_\_\_\_\_ &  
D \_\_\_\_\_

C \_\_\_\_\_ C \_\_\_\_\_

Memories can be lost by:

STM carries out two functions:

**Unit 3 KA4a: Nerve Cells and Neurotransmitters**

Draw a synapse, labelling the **pre synaptic neuron, vesicles containing neurotransmitters, synaptic cleft, post synaptic neuron and receptors**

Draw a neuron, labelling the **cell body, dendrite and axon**

Function of myelin sheath

By what process do neurotransmitters cross the synaptic cleft?

Why neurotransmitters must be removed after release.

State two functions of **glial cells**

Why a 2 year old's responses to stimuli are **not as rapid or co-ordinated** as an adult's.

Complete the sentence:

Two methods in which **neurotransmitters are removed from the synaptic cleft**

1. \_\_\_\_\_  
2. \_\_\_\_\_

1. \_\_\_\_\_  
2. \_\_\_\_\_

Certain diseases destroy the myelin \_\_\_\_\_ causing a loss of \_\_\_\_\_ - \_\_\_\_\_

Blank space for drawing a synapse.

Blank space for drawing a neuron.

Blank space for the function of myelin sheath.

Blank space for the comparison of child and adult responses.

Blank space for the process of neurotransmitter crossing the cleft.

Blank space for why neurotransmitters must be removed.

Blank space for completing the sentence about myelin.



**Unit 3 KA4b: Nerve Cells and Neurotransmitters**

- 1. Agonists
- 2. Antagonists
- 3. Other drugs

Explain the action of drugs which treat neurotransmitter disorders.

Complete the sentence:

Receptors on the post synaptic membrane determine whether the signal passed from neurotransmitters is \_\_\_\_\_ (more likely to be passed on) or \_\_\_\_\_ (less likely to be passed on).

the build up of enough weak signals to release sufficient neurotransmitter to trigger an impulse

Neurotransmitter involved in reducing pain

Type of neural pathway often involved in this

Neurotransmitter involved in feelings of pleasure

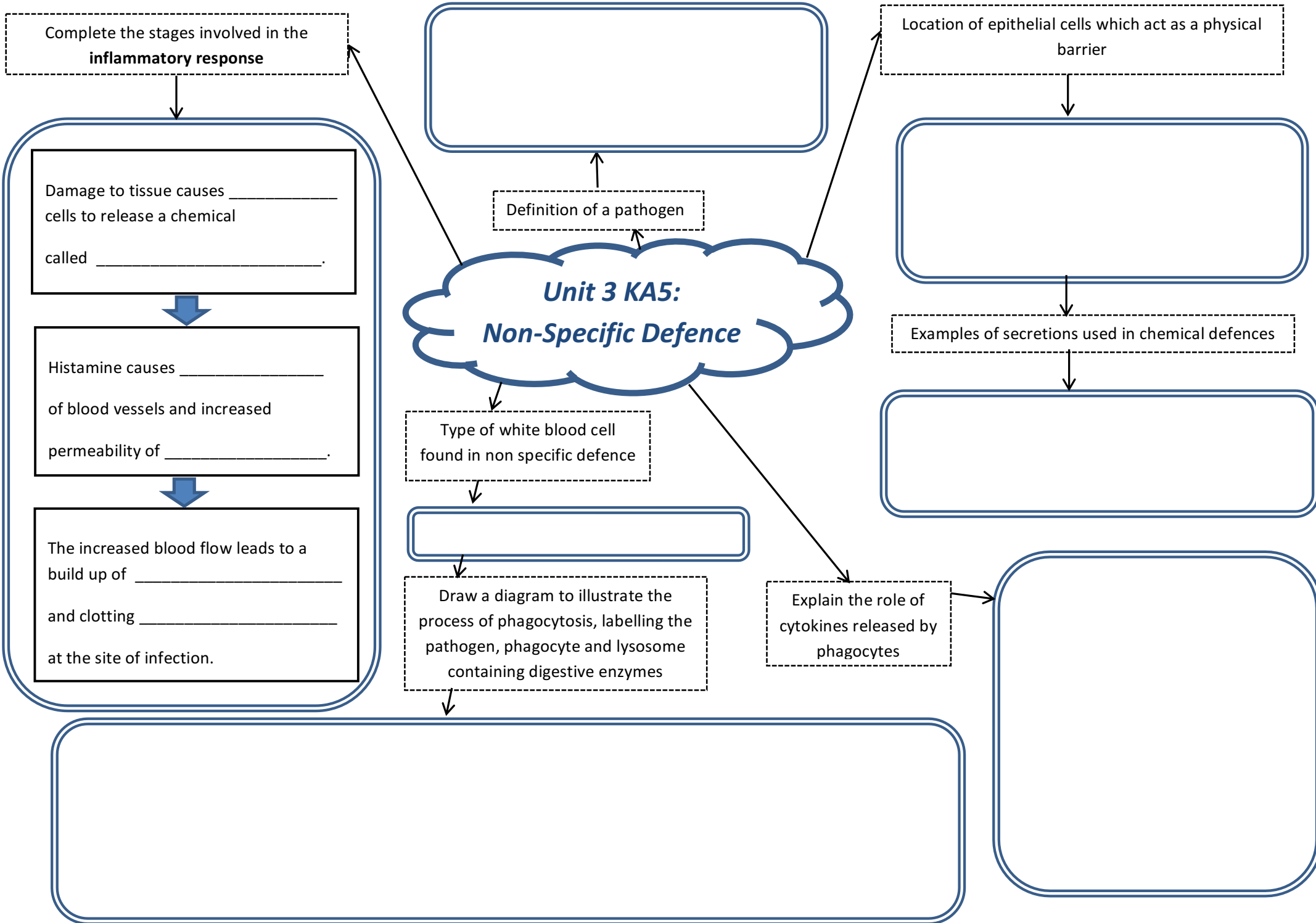
Drug addiction is caused by repeated use of drugs that act as \_\_\_\_\_ which block specific receptors causing the nervous system to increase both the number and sensitivity of these receptors. This \_\_\_\_\_ leads to addiction where the individual craves more of the drug.

Drug tolerance is caused by repeated use of drugs that act as \_\_\_\_\_ which stimulate specific receptors causing the nervous system to decrease both the number and sensitivity of these receptors. This \_\_\_\_\_ leads to drug tolerance where the individual must take more of the drug to get an effect.

What situations increase its production?

What situations activate the reward pathway?







**Unit 3 KA6:  
Specific Defence**

Complete the stages involved in the **clonal reproduction** of lymphocytes

Lymphocytes have \_\_\_ type of membrane receptor which is specific for \_\_\_ antigen on a pathogen.

Lymphocyte receptor binds to specific \_\_\_\_\_ on pathogen

Lymphocyte divides repeatedly forming a \_\_\_\_\_ population of identical lymphocytes.

&

Two types of lymphocytes

Which type of lymphocyte produces **antibodies**?

Diagram of an **antigen – antibody complex**, labelling receptor binding sites on antibody



What process then destroys the pathogen?

\_\_\_\_\_

2 differences in **antibody production** during secondary antigen exposure

1. \_\_\_\_\_
2. \_\_\_\_\_

Explain how **T Lymphocytes** destroy infected body cells

\_\_\_\_\_

HIV attacks which body cells?

\_\_\_\_\_

Resulting in which disease?

\_\_\_\_\_

Type of lymphocyte – B/T	Reaction	Attacks what antigen?	Example of condition
	Allergy		
	Auto immune disease		

**Unit 3 KA7:  
Immunisation**

What is **antigenic variation**?

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What is an **adjuvant** in a vaccine??

4 forms of antigens found in vaccines

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Herd immunity occurs when.....

Why do individuals need new influenza vaccination every year?

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Situations where widespread vaccination to establish herd immunity may not be possible

Herd immunity threshold depends on:

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In developing countries:  
  
In developed countries:

- 1.
- 2.
- 3.

