Question

What are the 5 senses?

Question

What are the different sense organs, and what do they sense?

Question

What is the job of the nervous system?

Question

What is the nervous system made up of?

Question

What is a receptor? Give some examples

Question

What is the job of a sensory neurone?

Answer

Eye – light

Skin – touch, temperature, pressure, pain

Answer

Smell
Sight
Taste
Touch
Hearing

Answer

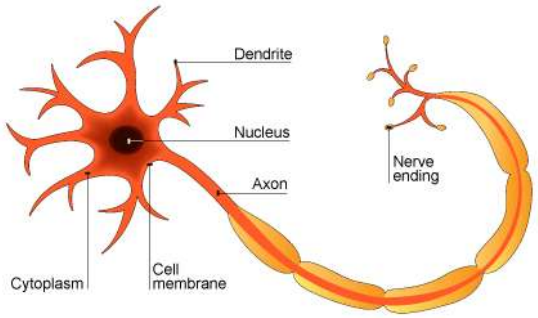
Nerves (sensory, motor and relay neurons), spine & brain

Answer

To sense and respond to the outside environment

Answer

To take information from the receptor to the CNS



Answer

A receptor receives information from the outside environment

Eye – light
Nose – smell
Skin – pressure & temperature

Question

What is the job of a motor neurone?

Question

What is the job of a relay neurone?

Question

What is a synapse and how does it work?

Question

What is an effector?

Give an example of an effector in a reflex reaction?

Question

What happens in a reflex action?

Question

What conditions within the body need to be controlled?

Answer

A relay neurone passes information within the CNS – these are used in reflex reactions to pass information straight from a sensory neurone to a motor neurone, bypassing the brain

Answer

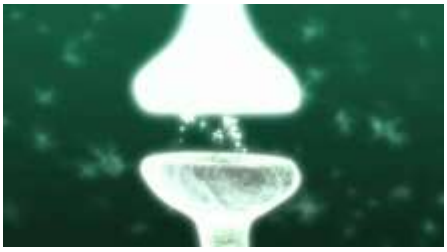
To take information from the CNS to the effector (muscle / gland)

Answer

An effector is the muscle or gland that is targeted in a nervous response (e.g. you blink because you have dust in your eye (the effector is the muscle in the eye lid))

Answer

A synapse is the gap between 2 nerves – chemicals called neurotransmitters pass across the gap



Answer

Temperature (37°C)
Water level
Ion level
Glucose level
Carbon dioxide

Answer

Receptor → sensory neurone → relay neurone → CNS → motor neurone → effector

Question

How does water leave the body?

Question

How are ions lost from the body?

Question

Why is it important to control temperature & how is this controlled?

Question

What is a hormone, and where are they secreted from?

Question

How do hormones travel around the body?

Question

What are the main differences between a hormonal and nervous reaction?

Answer

Sweat
Urine (via kidneys)

Answer

Sweat
Breath
Urine (via kidneys)
Faeces

Answer

Hormones are chemical substances that control processes within the body – they are secreted by glands (e.g. the adrenal and pituitary gland)

Answer

Temperature must be controlled as enzymes work best at 37°C – temperature is controlled by skin and blood vessels

Answer

Hormonal control: -

- Slow
- Travel within blood
- Go to whole body

Nervous control: -

- Fast
- Travel via nerves
- Go to a specific organ

Answer

In the blood

Question

Why is it important that blood sugar levels are controlled?

Question

What is the function of the hormone oestrogen and where is it secreted from?

Question

What controls the menstrual cycle?

Question

What are the 4 hormones involved in maintaining the menstrual cycle?

Question

What is the function of the hormone FSH, and where is it secreted from?

Question

How are hormones used to control fertility?

Answer

Oestrogen, secreted from the ovaries, inhibits (stops) FSH production and increases LH production

Answer

To maintain a constant energy supply

Too high or too low blood sugar levels can result in a coma / death

Blood sugar is controlled by the hormone insulin

Answer

Oestrogen
Progesterone
LH
FSH

Answer

Hormones control the menstrual cycle (oestrogen; progesterone; LH; and FSH)

Answer

FSH is used to increase fertility

The 'pill' prevents FSH (so preventing pregnancy)

Answer

FSH, secreted by the pituitary gland, causes the egg to mature and stimulates the ovaries to produce oestrogen

Question

How can FSH be used to control fertility?

Question

How does the contraceptive pill work?

Question

What are the possible problems with using FSH for fertility treatment?

Question

What does a healthy diet consist of?

Question

What does malnourished mean and what can this lead to?

Question

What deficiency diseases are caused by a lack of: -

- Iron
- Vitamin C
- Vitamin D

Answer

Oestrogen and progesterone are used to stop FSH production, stopping any eggs maturing, preventing pregnancy

Answer

FSH can be given to women who want to get pregnant but are having difficulty

FSH increases the number of mature eggs, increasing the likelihood of becoming pregnant and mature eggs can be collected for IVF

Answer

A balance of: -

- Carbohydrate
- Protein
- Fat
- Vitamins
- Minerals
- Fibre
- Water

Answer

FSH can lead to multiple eggs being released, resulting in multiple offspring

Answer

Iron → anaemia

Vitamin C → scurvy

Vitamin D → rickets

Answer

If you do not eat a healthy balanced diet you will be malnourished – this can lead to deficiency diseases as well as weight problems (too fat / thin)

Question

What health problems are linked to a lack of food?

Question

What is metabolic rate and what affects it?

Question

What may cause people to need less food?

Question

How does exercise affect your metabolic rate?

Question

What diseases are linked to obesity?

Question

What is arthritis?

What is diabetes?

Answer

Metabolic rate is the rate at which the chemical reactions occur within the cells – this is affected by exercise, proportion of muscle to fat and genetic makeup

Answer

Reduced resistance to infection / irregular periods

Answer

Metabolic rates stay high for some time after exercise

Answer

Less exercise / warmer climate

Answer

Arthritis – wearing of the joints

Diabetes – high blood sugar

Answer

Arthritis
Diabetes (type II)
High blood pressure
Heart disease

Question

What type of lipoproteins are 'bad' cholesterol?

Question

Where is cholesterol made?

Question

What affects the level of cholesterol in the blood?

Question

What are the health risks associated with too much cholesterol?

Question

What are the 2 types of lipoprotein that carry cholesterol in the blood?

Question

How is cholesterol carried in the blood?

Answer

Liver

Answer

LDLs – low-density lipoproteins

Answer

Diseases of the heart and blood vessels

Answer

Diet and inherited features

Answer

As lipoproteins

Answer

LDLs – low-density lipoproteins

HDLs – high-density lipoproteins

Question

Which type of fat increases the level of cholesterol in your blood?

Question

Which type of fat can reduce the blood cholesterol levels and improve the balance of LDLs and HDLs?

Question

Why is too much salt bad for you?

Question

Which types of food contain high levels of fat and salt?

Question

What are statins used for?

Question

What is a drug?

Answer

Monounsaturated and polyunsaturated fats

Answer

Saturated fats

Answer

Processed foods

Answer

Increased blood pressure for ~30% of the population

Answer

A substance, which affects the way the body or mind functions - the affects can be positive or negative

Answer

Lowering the risk of cardio-vascular disease

Question

How are drugs tested before they are prescribed to patients?

Question

What was thalidomide developed to treat, what were its side effects and what is it now used to treat?

Question

What are withdrawal symptoms and why do people suffer from these?

Question

What dangerous substances are found in cigarettes?

Question

What is a carcinogen and where are these found?

Question

How can smoking when pregnant affect the baby?

Answer

Developed as a sleeping pill but not tested during pregnancy – leads to offspring with limb abnormalities. Now affective treatment for leprosy

Answer

Tested in labs on cells and tissues / on animals and human volunteers / in clinical trials with a small dose

Answer

Nicotine → addictive

Carcinogens → cancer causing

Tar → coats lungs

Carbon monoxide → reduces oxygen carried within blood

Answer

Withdrawal symptoms are experiences when an individual stops taking a drug – these are suffered as the body has become dependent on the drug (the drug has affected the body chemistry of the individual)

Answer

Smoking can deprive the foetus of oxygen and lead to a low birth weight

Answer

Carcinogens are chemicals, which cause cancer – found within cigarettes

Question

What is carbon monoxide and what affect does it have on the body?

Question

How does alcohol affect the body and what are the long-term effects?

Question

What did Semmelweiss do to help prevent the spread of disease in hospitals?

Question

What is a pathogen and what are the 3 main types?

Question

How do bacteria make you ill?

Question

How do viruses make you ill?

Answer

Alcohol affects the nervous system and slows reaction times

Long-term effects include sclerosis of the liver and brain damage

Answer

Carbon monoxide is a poisonous gas, which reduces the ability for the red blood cells to carry oxygen around the blood

Answer

A pathogen is a microbe, which causes infectious diseases: bacteria, viruses and fungi

Answer

Semmelweiss realised the link between hygiene and infection rates – he prevented many deaths by insisting hospital workers washed their hands

Answer

They reproduce inside our body cells, causing damage to the cells they reproduce in

Answer

They reproduce rapidly inside the body and may produce toxins (poisons) making us feel ill

Question

How do white blood cells help to protect you against disease?

Question

What is an antibody and how do they help fight infections?

Question

How can painkillers help during an infection?

Question

How may a viral infection be treated by a doctor?

Question

What are antibiotics used to treat?

Give an example of an antibiotic

Question

Why are antibiotics not used to treat the flu?

Answer

Antibodies are produced by the white blood cells – they clump pathogens together (they also 'remember' the pathogens so they can fight them much quicker if an infection occurs again)

Answer

White blood cells ingest pathogens (produce antibodies which destroy bacteria and produce antitoxins to counteract the toxins)

Answer

Antiviral medications (hard to develop) and painkillers are prescribed

Answer

Painkillers treat the symptoms (i.e. a headache) but do not kill the pathogen

Answer

Flu is a virus – antibiotics have no affect (they only treat bacterial infections)

Answer

Antibiotics treat bacterial infections

Penicillin

Question

Why are antiviral drugs hard to develop?

Question

How have antibiotic resistant bacteria evolved?

Give an example

Question

What are we doing to prevent the evolution of more antibiotic resistant bacteria?

Question

How does a vaccination work?

Question

What is immunity?

Question

Give an example of a vaccination

Answer

Natural selection – antibiotics kill most bacteria, but some survive and reproduce into antibiotic resistant bacteria, e.g. MRSA

Answer

Viruses mutate (change) resulting in the antiviral medication no longer working

Answer

A small amount of dead or weakened microbe is injected – white blood cells make antibodies and the individual is now immune

Answer

Prescribing less antibiotics / improving hygiene within hospitals

Answer

MMR

Polio

Tetanus

Answer

Immunity means you cannot 'catch' a disease

Question

What does the MMR vaccination protect against?

Question

How may you become immune to a disease?

Question

In the menstrual cycle what happens at day 1-5 and then at day 14?

Question

What is insulin used to treat?

Question

Which hormone controls the maturation of the egg?

Question

Which hormone stimulates the lining of the uterus to thicken?

Answer

Catching the disease (and surviving) / vaccinations

Answer

Measles, mumps and rubella

Answer

Diabetes

Answer

Day 1-5 – lining of the uterus breaks down (period)

Day 14 – ovulation (egg released)

Answer

Oestrogen

Answer

FSH

Question

What is homeostasis?

Question

What 7 nutrients are needed for a healthy diet and what are they used for?

Question

What is the normal body temperature?

Question

What is the difference between saturated and unsaturated fat?

Question

What diseases are associated with smoking?

Question

What is meant by a 'gateway' drug?

Give an example

Answer

Carbohydrate – energy
Protein – growth and repair
Fat – insulation
Vitamins – chemical reactions
Minerals – chemical reactions
Fibre – aid digestion
Water – chemical reactions

Answer

Controlling the bodies internal environment

Answer

Saturated – fat saturated with hydrogen

Unsaturated – fat not saturated with hydrogen

Answer

37°C

Answer

A drug, which may lead to the use of harder drugs – e.g. cannabis

Answer

Lung cancer
Throat cancer
Emphysema
Heart disease

Question

What is the addictive substance in a cigarette?

Question

What is an epidemic?

What is a pandemic?

Question

Why are viral infections often more contagious than bacterial infections?

Question

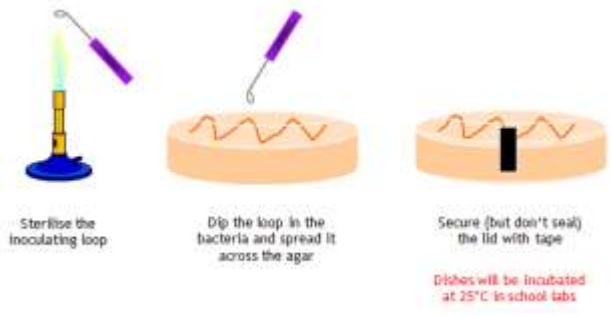
How does smoking affect the ciliated cells and what affects can this have on health?

Question

What is the definition for the following symbol: -

Question

How are micro-organisms grown?



Answer

Epidemic – a disease spread around a local area

Pandemic – a disease spread around the world

Answer

Nicotine

Answer

Cells become damaged, causing smokers to cough regularly

Answer

Viruses are small enough to be transferred in water droplets within the air

Answer

1. Sterilise the culture medium and petri-dish (done in an autoclave)
2. Use sterile inoculating loops (pass through a flame) to transfer micro-organisms
3. Seal the dish with adhesive tape to prevent micro-organisms from the air contaminating the sample / culture

Answer

Biohazard - (biological hazard) – a biological substance which poses a threat to the health of living organisms, primarily that of humans

Question

Why are micro-organisms not grown at temperatures above 25°C in school laboratories?

Question

Why does industry grow micro-organisms above 25°C

Question

What is a tropism and what are geotropism, hydrotropism and phototropism?

Question

What do auxins do?

Question

What is rooting powder?

Question

What are statins?

Answer

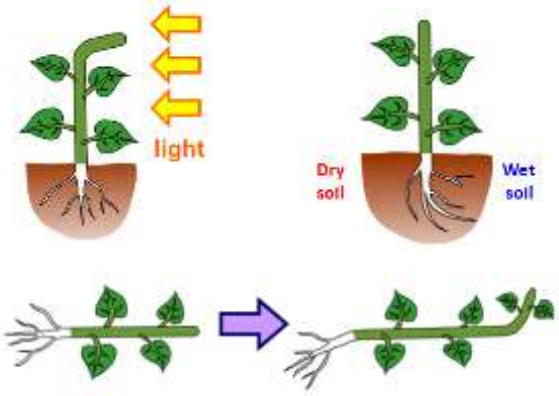
In industrial conditions higher temperatures can produce more rapid growth (although the risks are increased of growing pathogens potentially harmful to humans)

Answer

To reduce the risk of pathogens growing which might harm humans

Answer

Auxins are plant **hormones** that make some parts of a plant stem grow faster than others (controlling geotropism and phototropism)



Answer

Plants respond to stimuli by growing to or away from them – a growth movement in response to a stimulus is a *tropism* (towards stimulus = positive tropism, away from stimulus = negative tropism)

Geotropism – gravity
Hydrotropism – water
Phototropism - light

Answer

Statins are drugs which potentially reduce the risk of heart attacks and strokes – they do this by lowering the level of cholesterol in the blood

Answer

Rooting powder contains plant growth hormones – dip a cutting into rooting powder and the plant hormones stimulate the cutting to grow new roots

Question

What is doping?

Question

What do stimulants do?

Question

What do steroids do?

Question

What do beta blockers do?

Question

What is the function of the hormone LH in the menstrual cycle?

Question

What is cannabis?

Answer

They make athletes more alert and mask fatigue

Answer

Athletes who use performance enhancing drugs

Answer

They help athletes keep their heart rate low and reduce tremble in the hand

Answer

They help athletes train harder and build up muscles

Answer

Cannabis is an illegal drug which contains chemicals which may cause mental illness

Answer

LH stimulates the release of an egg from the ovary