

Keeping healthy

1 What is an epidemic?

A disease affecting many people in a country/area.



Keeping healthy

2 Why does bird flu spread quicker than swine flu?

There are more birds than pigs and birds migrate so it is difficult to control their movement.



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3 Why will antibiotics not get rid of flu?

Antibiotics only kill bacteria and flu is caused by a virus.



Keeping healthy

4 Explain why a person's diet should contain fat, protein and carbohydrates.

For a balanced diet as carbohydrates are needed for energy, proteins for growth (building cells) and repair and fats for energy and insulation.



Keeping healthy

5 Why does the body need vitamins and minerals?

To maintain health and prevent deficiency diseases such as scurvy, rickets and osteoporosis.



Keeping healthy

6 Explain why pathogens make us feel ill.

Pathogens reproduce quickly and produce large amounts of toxins which damage cells. Bacteria produce toxins, viruses damage cells.



Keeping healthy

7 Give three ways in which white blood cells protect us against pathogens.

White blood cells produce antibodies which destroy the pathogens, white blood cells engulf (ingest and digest) pathogens and produce antitoxins which counteract the toxins produced by pathogens.



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8 Why does a vaccination make people immune?

Injecting a patient with a dead/weakened or inactive pathogen. White blood cells produce antibodies which are reproduced quickly on re-infection.



Keeping healthy

9 What is the benefit of vaccinating a large number of people of the same population?

It reduces the risk of spreading an infection so an epidemic is less likely.



Keeping healthy

10 MMR stands for which three diseases?

Mumps, measles and rubella



Keeping healthy

13 Give three reasons for the low death rate from infectious diseases in modern hospitals.

Better hygiene, better drugs, better understanding about immunity, better sterilisation of equipment, better isolation of patients.



Keeping healthy

16 Give two factors that affect the concentration of cholesterol in a person's blood.

Diet, genes



Keeping healthy

11 Why can antibiotics not be used to cure viral diseases?

Viruses are found inside cells and are therefore inaccessible to the antibiotic.



Keeping healthy

14 Define metabolic rate.

The rate of chemical reactions inside the body.



Keeping healthy

17 Name two diseases linked to obesity.

Arthritis, diabetes, high blood pressure, heart diseases (stroke, heart attack, blood clots)



Keeping healthy

12 Explain why there are so many antibiotic-resistant bacteria these days.

Overusing antibiotics kills all non-resistant bacteria. This means there is less competition for non-resistant bacteria, formed as a result of gene mutation, so the non-resistant bacteria can reproduce.



Keeping healthy

15 Give three factors that affect a person's metabolic rate.

Level of activity, genes, BMI, age, gender



Keeping healthy

18 Incubation of bacteria usually takes place at 35°C, yet in school laboratories the temperature is restricted to 25°C. Explain why.

To prevent the growth of pathogens.



Keeping healthy

19 Why are hand gel dispensers placed at the entrance of most hospital wards?

It prevents the spread of pathogens as it destroys them.



Keeping healthy

22 What is a pandemic?

A worldwide outbreak of a disease. (involves several countries)



Keeping healthy

25 Why is it difficult to treat diseases caused by viruses?

Viruses live inside body cells so are inaccessible to antibiotics. Viruses also mutate frequently.



Keeping healthy

20 How do viruses cause illness?

They enter a cell and destroy it.



Keeping healthy

23 Why could a mutation of the influenza virus cause a pandemic?

The new strain is different from the old one. A new vaccination or new antiviral drugs have not yet been developed so people are not immune yet. The virus is not yet recognised by the white blood cells. As infected people travel from one country to another they spread the mutated virus.



Keeping healthy

26 There are no cases of Polio in the UK, yet people are still vaccinated against it. Explain why.

Polio is still found abroad. If people travel abroad and contract the Polio virus, they could re-introduce it to the UK where it would spread quickly. A pandemic/epidemic can only be prevented if a large proportion of people are vaccinated.



Keeping healthy

21 Which nutrient is contained in Agar?

Carbohydrates



Keeping healthy

24 What are the three main stages of drug testing before a drug can be sold to the public.

Test on tissues or animals to test for toxicity, test on a small number of healthy volunteers to determine side effects, testing on patients to determine optimum dose and see if it is effective.



Keeping healthy

27 Define obese.

Being overweight



Keeping healthy

28 Why does MRSA cause problems in hospitals?

MRSA is resistant to antibiotics; it is easily passed from one patient to the next; patients are too ill to fight the disease caused by MRSA or their own disease.



Keeping healthy

31 Why is an inoculation loop heated in a Bunsen burner flame?

To sterilise it and kill any bacteria found on it.



Keeping healthy

29 How does penicillin help to treat infections?

It kills the bacteria/prevents growth of bacteria.



Keeping healthy

30 Why should drug users not share needles?

Because viruses are transferred in body fluids such as blood and saliva.



Nerves & Hormones

34 Why must body temperature be kept within a narrow range?

So that enzymes and body reactions work well.



Nerves & Hormones

35 Describe IVF.

Eggs are collected from the ovaries. The eggs are fertilised with sperm; a ball of cells, or embryo forms which is inserted into the woman's uterus.



Nerves & Hormones

36 Suggest why IVF clinics are asked to reduce multiple births.

Babies are born with low birth weight; multiple births increase the risk of harm to mother and baby (i.e. miscarriages or premature birth).



Nerves & Hormones

37 How is information passed across a synapse?

By a chemical transmitter



Nerves & Hormones

38 Apart from using insulin, how else can diabetes sufferer reduce their blood glucose?

Controlled diet, exercise, pancreas transplant



Nerves & Hormones

40 What do anabolic steroids do?

They increase the growth of muscle.



Nerves & Hormones

41 Why are anabolic steroids banned in sport?

To ensure fairness during competition; anabolic steroids have harmful side effects.



Nerves & Hormones

43 List the main features of asexual reproduction.

No fertilisation, only one parent, no mixing of genetic material, no genetic variation (only clones).



Nerves & Hormones

44 Give one advantages of using tissue cultures rather than cuttings for plant reproduction.

Less damage to parent plant and many more plants can be grown/produced from one parent plant using tissue cultures.



Nerves & Hormones

39 Why does the blood glucose concentration decrease during a race?

Used during respiration to provide energy for the race.



Nerves & Hormones

42 Name one plant hormone.

Auxin



Nerves & Hormones

45 Describe the pathway taken by the nerve impulse in the blink reflex.

From light sensitive cells to sensory neurone to the brain/CNS to the motor neurone to the eye lid muscle (effector).



Nerves & Hormones

46 Other than plant reproduction, give a use for plant hormones.

Weed killer



Nerves & Hormones

47 What is a hormone?

Chemical messenger



Nerves & Hormones

49 How are hormones transported inside the body?

Blood



Nerves & Hormones

50 Describe how the hormones FSH, oestrogen and LH are involved in the control of the menstrual cycle.

FSH stimulates oestrogen production and egg maturation; oestrogen then inhibits further FSH production, stimulates LH production as well as the build-up of the uterus lining; LH stimulates ovulation.



Nerves & Hormones

48 Which organ produces hormones?

A gland



Nerves & Hormones

52 Which word describes a change in the environment?

Stimulus



Nerves & Hormones

53 Give one medical use of thalidomide today.

Sleeping pill; treating leprosy



Nerves & Hormones

54 Which two hormones are used in IVF treatment?

FSH and LH



Nerves & Hormones

55 Name two hormones involved in the menstrual cycle.

Oestrogen, progesterone, LH, FSH



Nerves & Hormones

56 Explain how hormones used in contraceptive pills can prevent conception.

FSH production is inhibited so that the egg does not mature.



Nerves & Hormones

58 Name the gland that produces oestrogen.

Ovaries



Nerves & Hormones

59 Give two disadvantages of IVF treatment.

Low success rate, expensive, risk of multiple births, stressful (emotional)



Nerves & Hormones

61 Why is it dangerous when information from the skin does not arrive at the brain?

The stimulus cannot be felt so there is a risk of serious or permanent harm. (E.g. skin burns)



Nerves & Hormones

57 Name the gland that produces FSH.

Pituitary



Nerves & Hormones

60 Describe what happens at a synapse when an impulse arrives.

Chemicals/transmitters diffuse across the gap so that the impulse can pass from one neurone to the next.



Nerves & Hormones

62 Name three conditions which are controlled inside our body.

Heart rate, blood pressure, blood glucose, water, minerals/salts, temperature



Nerves & Hormones

63 Why is it difficult to give up an addictive drug?

An addictive drug alters the body chemistry so the user craves the drug. Withdrawal symptoms start once the user stops taking the drug.



Nerves & Hormones

64 Why do some oral contraceptives contain oestrogen?

Because oestrogen inhibits FSH production; without FSH the egg does not mature and ovulation does not happen.



Nerves & Hormones

65 Why do you sweat more when you exercise?

Exercise raises the body temperature/makes you feel hot and sweating helps to cool down the body.



Nerves & Hormones

67 What are the disadvantages of using contraceptive hormones?

Prolonged use might lead to infertility; might cause weight gain, mood swings, breast cancer or headaches; increase in STDs as condoms are not used



Nerves & Hormones

68 Why does a blockage of an oviduct/fallopian tube cause infertility?

Egg and sperm cannot meet.



Nerves & Hormones

70 Which organ controls the amount of water in the body?

Kidney



Nerves & Hormones

71 How does your body control the rate at which your kidney re-absorbs water?

With ADH from the pituitary gland



Nerves & Hormones

66 Why do you need to drink more water when you exercise?

A lot of water is lost during sweating which needs to be replaced to prevent dehydration.



Nerves & Hormones

69 Describe how changes in the uterus lining adapt it for its function if an egg is fertilised.

The lining builds so that a zygote could implant- the surface area increases so there is a better chance that the zygote attaches; increase in blood vessels to provide nutrients for the zygote; it thickens to form the placenta



Drugs

72 What type of illness could be caused by smoking cannabis regularly?

Mental illness (Paranoia, schizophrenia, depression, dementia)



Drugs

73 Give an example of a very addictive recreational drug.

Heroin, cocaine, nicotine



Drugs

74 What is a drug?

A substance that affects chemical reactions in the body



Drugs

75 What is a synapse?

A gap/junction between two neurones



Drugs

76 What is a placebo?

A tablet without the drug



Drugs

77 Why is a placebo group used in drug trials?

For comparison; to see if the drug works



Drugs

78 Give three reasons why drugs must be tested before they can be used on patients.

To check the drug is not poisonous; to check if it treats the disease; to determine the dosage; to see how it interacts with other drugs.



Drugs

79 What is a recreational drug?

A drug taken for pleasure/fun



Drugs

80 What is the main purpose of pre-clinical testing?

Testing for toxicity



Drugs

81 What is the main purpose of phase-I testing?

Testing for side-effects and interactions with other drugs



Drugs

82 What is the main purpose of phase-2 and phase-3 testing?

To find the optimum dose and see if the drug works on ill people.



Drugs

83 How is a foetus affected by a smoking mother?

Reduced birth mass; foetus receives less oxygen; smoke contains toxic carbon monoxide



Adaptations

84 What term is used to describe organisms that can survive in severe conditions such as very high concentrations of salt solution?

Extremophiles



Adaptations

85 Name two things plants compete for.

Water, space, light, minerals



Adaptations

86 Give two reasons why deforestation causes carbon dioxide levels in the atmosphere to increase.

Less CO₂ is absorbed by photosynthesis and machines used to clear forests release carbon dioxide during combustion.



Adaptations

87 Define biodiversity.

It means a range of different species.



Adaptations

88 Why is it important to prevent organism from becoming extinct?

Organism might produce substances that are useful to humans; it has a knock-on effect on the food chain; it is our duty to preserve organisms for future generations



Adaptations

89 Why are some animals brightly coloured?

To warn predators that they might be poisonous or dangerous.



Adaptations

90 Why is it an advantage for a tree to be triangular in shape in snowy habitats?

The snow will fall off easier.



Adaptations

91 Lichens are good indicators of which pollutant gas?

Sulphur dioxide



Adaptations

92 A kangaroo rat lives in very dry and hot deserts and does not produce urine. Why not?

To conserve water



Adaptations

93 Give one possible danger of spraying crops with pesticides.

The pesticide might harm other organisms, not just the pest.



Adaptations

94 Explain the advantage to plants of dispersing their seeds.

Reduced competition for space, light, nutrients and water.



Adaptations

95 Give two factors for which animals might compete.

Mate, food, water, space, status



Adaptations

96 During the dry season, the sand gazelle's liver and heart shrink in size. This reduces the amount of oxygen that the body needs. Suggest how needing less oxygen helps the animal to conserve water.

Breathing rate is lower so less water is lost from breath as less respiration occurs



Biomass & Food chains

97 All the energy grass absorbs from the Sun is eventually lost to the surroundings. In what form is this energy lost?

Heat from respiration.



Biomass & Food chains

98 Give three reasons why so little of the energy in the trees is passed on to the carnivores.

Lost as heat (and to keep the body warm), lost in movement, lost in faeces and urine, lost in respiration.



Biomass & Food chains

99 Give three ways in which energy released in respiration is used.

Maintain body temperature, heartbeat, movement.



Biomass & Food chains

100 How is energy stored in new plants?

Sugar, carbohydrates, proteins, fats.



Biomass & Food chains

101 Many of the animals which form part of our diet are herbivores rather than carnivores. Explain why as fully as you can.

Plants at the start of all food chains so the food chain is shorter and less energy is lost.



Decay

103 Explain why a compost heap contains soil as well as dead plant material.

Soil contains the microbes needed to decay the dead plant material.



Decay

104 Explain why a compost heap contains holes in the sides.

To let in oxygen for aerobic respiration of microorganisms; to let excess heat escape.



Decay

105 What are the four things needed for decay?

Warmth, moisture, oxygen, microorganisms



Decay

106 Why do gardeners put compost onto soil around plants?

Compost contains minerals.



Decay

107 Why are fungi called decomposers?

They break down dead material.



Genetic variation

108 Why are some people against using GM foods?

We are uncertain about their health effects.



Genetic variation

109 How many chromosomes are there in sperm and egg cells?

23



Genetic variation

110 Egg cells and sperm cells are called this.

Gametes



Genetic variation

112 Gardeners often grow new plants from cuttings instead of from seeds.

Why?

Quicker, cheaper, more reliable



Genetic variation

113 How are genes cut out of chromosomes?

With enzymes



Genetic variation

115 How do scientists produce genetically modified animals?

Genes of one animal/plant are removed using enzymes and transferred to embryo of second animal.



Genetic variation

116 Give two differences between asexual reproduction and sexual reproduction.

Sexual involves fusing gametes, mixing of genetic material, two parents, results in variation, whereas asexual produces clones and only one parent is required as cells are split.



Genetic variation

111 What does it mean to be in the same species?

To be able to breed together and produce fertile offspring.



Genetic variation

114 How does sexual reproduction produce variation?

Gametes join so genetic material is mixed.



Genetic variation

117 What is a clone?

Genetically identical organism.



Genetic variation

118 What are the advantages of cloning?

Fast, economic, large number of identical offspring produced which have desired features.



Genetic variation

119 What are the disadvantages of cloning?

May succumb to an unexpected disease and get wiped out, limits variation.



Evolution

120 How does natural selection occur?

Due to gene mutations there is variation within a species. Those that are best adapted to their environment survive, breed and pass on their genes.



Evolution

121 Why was Darwin's theory of evolution only gradually accepted?

His theory undermined the idea that God created all animals and plants; there was insufficient evidence at the time; the mechanisms of inheritance were not yet known.



Evolution

122 What does the theory of evolution state?

Present day organisms have evolved from simpler earlier organisms over millions of years.



Evolution

123 Explain how Jean-Baptiste Lamarck (1744–1829) accounted for the evolution of the long neck in giraffes.

Stretching of necks to reach food lengthened the neck and was passed on to offspring.

