Name: Form:

SCIENCE FUNDAMENTAL KNOWLEDGE QUIZ BOOKLET

Key Stage 4
Paper 2
Biology

B5 – Homeostasis 1

State the 4 parts of the nervous system Brain, Neurones, Spinal cord, receptor cells	What is this the definition of 'A change in the environment' Stimulus	Which type of cell detects a stimulus? Receptor	Name the 3 neurones in order Sensory, Relay, Motor	What travels along a neurone? Electrical impulse
In a conscious action where does the electrical impulse travel to? Brain	In a reflex action where does the electrical impulse travel to? Spinal cord	Put a reflex action in order: Relay neurone, Spinal cord, Motor neurone, Stimulus, Effector, Receptor cells, Sensory Neurone, response 1) Stimulus, 2)Receptor cells, 3)Sensory, 4)Relay, 5)Spinal cord, 6) Motor, 7) Effector, 8) Response		What is the junction between 2 neurones called? Synapse
What diffuses across the synapse? Neurotransmitters	State a test that can be used to test reaction time Ruler drop test	State 3 factors that can affect reaction time Age, Amount of sleep, amount of caffine	Where is an electrical impulse generated? Receptor cells	Calculate the uncertainty on the following results: 12.2, 12.7, 12.0, 12.5 12-12.7 = 0.7/2 = 0.35
State 3 reasons why we repeat an experiment Calculate a mean, spot anomalies, reduce random error	Which response is faster reflex or conscious? Reflex	Which receptors detect the following: Noise: Sound Taste: Chemical	Describe how information is transferred across the synapse. Neurotransmitters, Diffuse Across the synapse and Bind To the next neurone	

B5 – Homeostasis 2

What is the name of the system that contains the hormones and glands? Endocrine System	Describe what a hormone is Chemical messenger, that travels in the blood	Name the master gland Pituitary gland	State which gland these hormones are released from: Thyroxine: Thyroid Adrenaline Adrenal Insulin: Pancreas	State which gland these hormones are released from: Glucagon: Pancreas Oestrogen: Ovaries Testosterone: Testes
Which hormones control the following: Metabolic rate: Thyroxine Heart rate: Adrenaline Lowers glucose: Insulin	What is this the definition of: 'Regulation of internal conditions' Homeostasis	Describe how glucose levels are lowered: Panaceas detects a change and releases insulin, which travels in the blood to the Liver, where the glucose is stored as Glycogen	Which type of diabetes doesn't release insulin? Type 1 Which type of diabetes does the liver not respond? Type 2	State a treatment and a cure for type 1 diabetes: Insulin injections Treatment: Cure: Pancreas transplant/ Stem cell therapy
State which hormone does the following Matures egg: FSH Builds up uterus lining: Oestrogen Releases egg: LH Maintains uterus lining: Progesterone	State another name for releasing the egg and which day does this happen? Ovulation 14 Days	State which hormone are in the contraceptive Pill/ Patch/ Implant. Oestrogen HT Only- How do they prevent pregnancy? Inhibits FSH which stops the egg maturing	HT Only- Describe how the body responds if glucose levels are low. Pancreas detects, release glucagon which travels in the blood to the liver, liver breakdown glycogen to glucose	HT- Describe stages of IVF 1) FSH is injected into the ovaries 2) Eggs Are collected 3) These are Fertalised in a test tube 4) Turned into Embryo 5) Implanted back into the Uterus lining

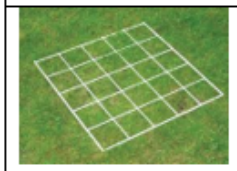
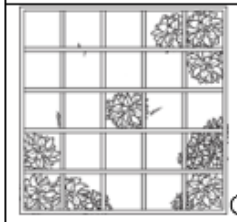
B6 – Inheritance 1

Name the 3 stages of cell cycle in order **Interphase, Mitosis, Cytokinesis**	Which stage of the cell cycle does the chromosomes pull to each of the cell **Mitosis**	Which stage of the cell cycle does the cell membrane divide **Cytokinesis**	Which stage of the cell cycle does DNA replicate **Interphase**	Which stage of the cell cycle does the nucleus divide **Mitosis**
How many cells are produced in: Mitosis: **2** Meiosis: **4**	Which cell division produces gametes? **Meiosis**	Which type of cell division produces identical cells **Mitosis**	What is sexual reproduction? **Fusion of gametes**	State something that reproduces asexually **Bacteria**
Why are asexual offspring identical? **Clone, so have same DNA**	Why are sexual reproduced offspring not identical **½ chromosomes from each parent**	Describe the structure of DNA **Polymer, 2 stands in a double helix**	What is a gene? **Small section of DNA**	Describe the following genotypes BB: **Homozygous Dominant** Bb: **Heterozygous** bb: **Homozygous recessive**
What is the probability a BB Brown hair bb Blonde hair person have a Brown hair baby. **100%**	What set of chromosomes for: Male: **XY** Female: **XX**	Is Cystic Fibrosis Dominant or recessive **Recessive**	State a Dominant inherited disorder **Polydactyly**	What is a genetic disorder caused by? **Mutation to DNA**

B6 – Inheritance 2

What causes a variation in a gene? **Mutation**	If a mutation is advantageous you are more likely to **Survive**	If you survive they can **Breed**	When they breed they pass on the gene to **Offspring**	Sate 4 reasons for extinction **New Predator** **New Disease** **New Competition** **Extreme change in environment**
What is a fossil? **Remains of dead plants if animals from thousands of years ago**	State 3 ways a fossil can form **Preserved traces** **Lack of decay** **Minerals replacing bones**	State 3 ways to prevent antibiotic resistant bacteria **Finish all antibiotics** **Reduce use in animals** **Don't overprescribe**	During selective breeding step 1: Parents are chosen with **Desired** characteristics	Step 2: These parents are **Bread** together
Step 3: Offspring with **best** characteristics are chosen Step 4: These are bread through **many** generations	State a disadvantage of selectively breeding animals **Inherited diseases passed on** **Inbreeding**	State a disadvantage of selectively breeding plants **Inherited diseases passed on** **Reduce biodiversity**	What is used to cut out a gene in genetic engineering? **Enzyme**	Where is the gene inserted into? **Vector**
Where is a vector transferred to? **Embryo**	Place the following in the correct order Class(3), Order(4), Kingdom(1), Phylum(2), Species(7), Genus(6), Family(5)	The binomial name of a pig is Sus scrofa domesticus. What is the species of a pig? **Domesticus**	State the 3 domains **Archea** **True Bacteria (Prokaryotic)** **Eukaryotic**	Which domain is a bacteria that lives in extreme conditions? **Archea**

B7 – Ecology

State one thing that a plant depends on an animal for Pollination, Nutrients from droppings	State one thing an animal depends on other animals for Mate, food	What is a plant in a food chain Producer	State a biotic factor that can affect human population Amount of food available, competition, predator	State an abiotic factor that can affect human population Amount of water, Amount of Oxygen
 What is this piece of apparatus? Quadrat	How should a quadrat be placed? Randomly	How do you place a quadrat randomly? Split field into coordinates	An area was 10m by 20m. a quadrat was placed 10 times with the following population sizes 3,0,9,2,1,5,7,3 Estimate the population size in the field Area = 200m^2 Mean= 3.75 Estimate = 200 x 3.75 =750	State 2 ways to improve accuracy of your estimate? Larger quadrat Place more times
 Calculate percentage coverage of the quadrat? (9/25) x 100 =36%	State 4 parts of the water cycle Evaporation Condensation Run off Transpiration	State 5 parts of the carbon cycle Photosynthesis Combustion Feeding Decay Respiration	What size wavelength radiation does the sun release? Short	How does the size compare after it has reflected off the earth? Longer