Year 10 Biology Revision Material



CB1: Key Concepts in Biology - Core Questions

	Question	Answer
1	What is the function of the nucleus in cells?	Contains DNA
2	What is the function of the cell membrane?	To control which substances enter and exit the
		cell.
3	What is the function of the mitochondria in	Releases energy. Where aerobic <u>respiration</u>
	cells?	occurs.
4	What is the function of the ribosome in cells?	Making proteins.
5	Name three structures that you might find	Cell wall, vacuole, chloroplast.
	inside a plant cell but <i>not</i> inside an animal cell.	
6	What is the function of the chlorophyll in cells?	Traps light energy to be used in photosynthesis.
7	What is the function of the vacuole in plants?	Stores cell sap.
8	What is the function of the cell wall in plants?	Contains cellulose to provide support.
9	Prokaryotic cells (e.g. bacteria) differ from	Prokaryotic cells <u>don't have a nucleus</u> (they
	eukaryotic cells (e.g. animal) in what way?	have chromosomal and plasmid DNA instead)
10	What are the small loops of DNA in bacteria called?	Plasmid DNA
11	In what way are sperm and eggs cells similar to	Haploid nucleus. They contain half as many
	each other but different to body cells?	chromosomes as body cells.
12	List four ways that sperm cells are adapted for	They have an <u>acrosome</u> , <u>haploid</u> nucleus, many
	their function.	mitochondria and a tail
13	List three ways that egg cells are adapted for	They hold <u>nutrients in their cytoplasm</u> , have a
	their function.	haploid nucleus and changes occur in the cell
		membrane after fertilisation
14	How are the cells that line the small intestine	They have many tiny folds called microvilli that
	specialised for their function of absorbing	give them a <u>large surface area</u> .
	food?	
15	How have developments in microscope	A <u>higher magnification</u> using <u>electron</u>
	technology helped us understand more about	microscopes has allowed us to see more detail
	cells?	including more sub-cellular structures.
16	What is 30 µm in mm?	0.03 mm (be ready for other examples)
17	How do you calculate the total magnification	<u>Evepiece</u> lens magnification x <u>objective</u> lens
10	of a microscope?	magnification
18	How do you calculate the actual length of a	Actual length = magnified length ÷
10	Magnified image?	
19	Which stain is used when viewing plant cells?	Iodine
20	animal call cample before viewing it under a	It is a <u>stain</u> that makes objects in the slide <u>more</u>
	microscopo2	visible.
21	What is an enzyme?	A hiological catalyst made of protein
21	List three cellular reactions that enzymes	Respiration photosynthesis digestion protein
22	catalyse	synthesis and DNA renlication
23	Which enzyme breaks down protein? Name	Protease breaks down protein into amino acids
2.5	the product formed.	
24	Which enzyme breaks down fat? Name the	Lipase breaks down fat into fatty acids and
	product formed.	glycerol
25	Which enzyme breaks down carbohydrate?	Carbohydrases such as amylase break down
	Name the product formed.	carbohydrates into sugars.

26	What is the uniquely shaped 'pocket' on the outside of an enzyme called?	The active site
27	What do we call substances that fit into the active site for enzymes to work on?	Substrates
28	Which model do we use to explain how enzymes work?	Lock and key model
29	State three conditions that might affect the rate at which an enzyme works.	Temperature, pH and substrate concentration
30	Which two conditions could affect the shape of an enzyme's active site?	Temperature and pH
31	What is a denatured enzyme?	An enzyme that has an <u>active site</u> which has <u>changed shape</u> and no longer allows the substrate to fit.
32	Define diffusion	Substances moving from <u>high to low</u> <u>concentration</u> (down a concentration gradient).
33	Define osmosis	The overall movement of solute molecules in a solution across a <u>partially permeable membrane</u> from a <u>dilute solution to a more concentrated</u> <u>one.</u>
34	Define active transport.	The movement of substances from an area of low concentration into an area of higher <u>concentration</u> . This requires <u>energy</u> .

CB2: Cells and Control Core Knowledge

	Question	Answer
1	What are the stages of mitosis?	Interphase, prophase, metaphase, anaphase, telophase and cytokinesis
2	Why do cells do mitosis?	Growth, repair and asexual reproduction
3	Describe mitosis	The production of <u>two diploid</u> daughter cells, <u>genetically</u> <u>identical</u> to each other and the parent cell.
4	What is cancer?	<u>Uncontrolled mitosis</u> . Rapid cell division can cause <u>tumours</u> that can damage the body.
5	How is growth different in plants and animals?	In animals, cells <u>divide</u> then <u>differentiate</u> . In plants they <u>divide, elongate then differentiate</u> .
6	What is growth?	Growth is an increase in size as a result of an <u>increase in</u> <u>number or size of cells</u> .
7	What process leads to the creation of specialised cells?	Differentiation
8	How are percentile charts used to monitor growth?	Mass and length/height of babies are <u>checked on a</u> <u>graph</u> to compare to others the <u>same age</u> . Babies should remain on or around the same percentile line as they grow.
9	How can percentage change be calculated?	(Final value- initial value)/initial value x 100

10	What are stem cells?	Cells that <u>divide repeatedly</u> over a long period of time to produce cells that can differentiate.
11	What are plant stem cells called?	meristems
12	What is the difference between adult and embryonic stem cells?	Embryonic stem cells can differentiate to produce any kind of cell. Adult stem cells usually only produce specialised cells of one tissue type.
13	List two benefits associated with the use of stem cells in medicine	Benefits- can <u>treat different diseases</u> caused by damaged cells. Can be used to <u>test new drugs</u> and treatments on.
14	List two risks associated with the use of stem cells in medicine	Risks- if stem cells continue to divide this could cause <u>cancer</u> . Also if stem cells from one person are placed in another they could be killed by the immune system and be <u>'rejected'</u> .
15	What is the Central Nervous System (CNS) made up of?	The brain and the spinal cord
16	Describe the structures and functions of the parts at each end of a neurone.	Dendrite- tiny branches that receive impulses from receptor cells Axon terminal- allows signal to be transmitted to the next cell
17	What is the function of the myelin sheath?	Insulator made of fat. Speeds up the signal.
18	What are neurotransmitters? Where are they released?	<u>Chemicals</u> that are released at an axon terminal and <u>diffuse across the synapse</u> (gap) between neurones to pass on a signal.
19	What are the steps in the reflex arc?	Stimulus>receptor>sensory neurone>relay neurone> motor neurone> effector> response.

CB3 Genetics - Core Questions

	Question	Answer
1	What are gametes?	Haploid <u>sex cell</u> s (e.g. eggs ,sperm, pollen)
2	Describe the products of meiosis	Cell division that produces <u>four haploid</u> daughter cells- <u>genetically different</u> to parent cell. These are gametes
		(sex cells).
3	What is a genome?	A complete set of chromosomes/ full set of DNA
4	Describe the structure of DNA	Two strands in a double helix, joined together by
		complementary bases with weak hydrogen bonds
		between each other.
5	How do the bases form complimentary	Cytosine- Guanine (with 3 weak Hydrogen bonds)
	pairs in DNA?	Adenine- Thymine (with 2 weak Hydrogen bonds)
6	What is a gene?	A section of DNA with the instructions for making a
		single protein.
7	When extracting DNA from fruit, what	It breaks down the membranes around the cell and the
	is the role of the detergent solution?	nucleus.

8	When extracting DNA from fruit, what	(ice	(ice-cold) ethanol			
9	What are alleles?	Diff	Different versions of the same gene			
10	What is an organisms genotype?	The	The combination of alleles an organism has for a			
		cha	racter	istic	(e	.g. Bb).
11	What is a phenotype?	Wha	at an	orgar	nis	sm looks like (as a result of its genotype)
12	How do alleles result in differences in the characteristics inherited by an individual?	Inhe diffe	Inheriting different combinations of alleles result in different characteristics being 'expressed'.			
13	Describe the genotype BB	Hon	nozyg	ous c	do	minant (be prepared for other examples)
14	State the sex chromosomes contained within a male and a female body cell.	Mal	e = xy	. Fer	ma	ale = xx.
15	Draw a punnett square to show that		x	x		
	the chance conceiving a girl is 50%	x	xx	xx	1	
			—			
		Y	XY	XY		
16	Define mutation.	A ch	nange	in a g	ge	ne that results in a new allele.
17	When does mutation usually occur?	Dur	ing ce	ll div	isi	ion.
18	How often will a mutation lead to a change in the phenotype of an organism? Why?	Very thar	Very rarely. Most characteristics are the result of more than one gene.			
19	What is the human genome project?	A pr full	oject set of	to m 46 h	ap ur	o all 3.3 billion complementary bases in a man chromosomes.
20	State two ways that information about a person's genome could be useful in medicine?	1. lo 2. lo	 Identifying their risk of developing certain diseases. Identifying which medicines will work best for them. 			
21	What causes genetic variation?	Sexu	ual re	prod	uc	tion and mutation
22	What defines data for discontinuous variation?	The data can only take a limited set of values (e.g. colour, sex)				
23	What do we call variation where the data collected can be any value in a range?	Con	Continuous variation			
24	What name do we give the bell-shaped curve that continuous data for variation often forms?	A no	A normal distribution			

Topic 4 Natural Selection and GM- Core Questions

	Question	Answer		
1	What are the five key stages in	1. Genetic variation		
	Darwin's theory of evolution by	2. Change causes competition		
	natural selection?	3. Natural selection (survival of the 'fittest')		
		Inheritance (successful genes are passed on)		
		5. Evolution (over many years)		
2	Explain how the emergence of	Bacteria reproduce very quickly compared to most other		
	resistant organisms supports	organisms. Helpful mutations inherited and population adapt		
	Darwin's theory of evolution	to new conditions.		

	including antibiotic resistance in	
	bacteria.	
3	What fossil evidence do we have	a Ardi from 4.4 million years ago
	for the evolution of humans?	b Lucy from 3.2 million years ago
		c Leakey's discovery of fossils from 1.6 million years ago
4	Describe the changes seen in	Humans have become <u>taller</u> , <u>larger skulls</u> (bigger brain
	fossils as early humans have	volume) and have <u>shorter arms</u> .
5	Evolved.	Carbon dating
5	and tools	Comparing them to other samples already dated
		Using the age of the rock formation they were found in.
6	Describe how tools have	Tools have become sharper and changed shapes as humans
	developed over time	evolved, more modern tools have become more <u>sophisticated</u>
7	What are the five kingdoms used	Animals, Plants, Fungi, Prokaryotes and Protists.
	to classify all living organisms?	
8	Describe how genetic analysis has	Some single-celled organisms were found to have genes more
	led to the suggestion of the three	similar to plants and animals than to prokaryotes.
	domains rather than the five	
	kingdoms classification method	
9	What are the three domains and	Archaea- no nucleus, genes contain unused sections of DNA
	how are organisms classified into	Bacteria- no nucleus, no unused sections in genes
	them?	Eukarya – has nucleus, unused sections in genes
10	What is a binomial name?	A two word Latin name (written in <i>italics</i>) from the <u>genus</u> and
11	What is calactive broading?	<u>Species</u> of an organism E.g. <i>Homo sapiens</i>
LT .	what is selective breeding?	Breeding them
		Selecting offspring that have inherited those characteristics
		for further rounds of breeding.
12	What has the impact of selective	Food plants (crops): higher yield, nutritional value, pest and
	breeding been on food plants and	disease resistance and also tolerance to common weather
	domesticated animals?	conditions.
		Domesticated animals: grow faster, healthier, are more fertile,
		produce higher yields of meat, milk or wool and have
12		temperaments useful for their role.
13	what is genetic engineering?	organism to introduce desirable characteristics.
14	Evaluate the benefits of genetic	Benefits: Can get desirable characteristics quickly .
	engineering in modern	Genes can be moved between species. E.g. insulin producing
	agriculture and medicine.	bacteria
15	Evaluate risks of genetic	Risks: risk of cross breeding, unknown health effects of eating
	engineering in modern	GM foods. If the gene mutates further we are unsure of the
	agriculture and medicine,	effects.
	including practical and ethical	
16	Finduate the benefits of selective	Benefits: 'natural' process using only the genes that exist in
10	breeding in modern agriculture	the species.
	and medicine.	Achievable for many plant and animal owners.
		Can produce organisms better suited to our needs.

17	Evaluate the risks of selective	Risks: inbreeding, lack of genetic diversity that could cause a
breeding in modern agriculture		failure to meet the unknown needs of the future or put all
	and medicine, including practical	organisms at risk of the same disease/ environmental
	and ethical implications	condition.

Unit 1 Questions

1. What three things are present in plant cells but not animal cells? (CB1b)	2. What is the function of the cell membrane? (CB1b)	3. What is the special shape on the outside of an enzyme called? (CB1f)
4. What do animal cells have that bacterial cells do not? (CB1d)	5. What two-word phrase describes the role of enzymes in the body? (CB1e)	6. A cell in a picture measures 15mm across. The magnification in the photograph is x1000. What is the actual size of the cell? (CB1a)
7. Lipase is an enzyme that digests fats. What two things does fat break down into? (CB1e)	 8. What is the role of chloroplasts in plant cells? (CB1b) 	9. What can be done to samples of cells to make them more visible under a microscope? (CB1a)
10. Name one feature of sperm cells that helps them perform their function. (CB1c)	11. Draw a labelled lock and key n protease enzyme on a molecule of	nodel showing the effect of a
12. What benefit do electron microscopes offer over light microscopes? (CB1a	 13. Estimate the length of the cell in this picture. (CB1b) 2 μm 	14. Name two conditions that can affect the shape of an enzyme. (CB1g)

Unit 2 Questions

 Which form of cell division is used for growth and repair? (CB2a) 	2. What two parts of the human body make up the central nervous system? (CB2e)	3. What process is involved in the growth of plants but not animals? (CB2c)
4. What is special about embryonic stem cells? (CB2d)	 5. Which two parts of the nervous system are missing from this stimulus ? response pathway? (CB2e) Stimulus >? > sensory neurone > CNS >? > effector > response. 	6. Describe the cells produced by mitosis. (CB2a)
7. How many daughter cells are produced by mitosis if a cell undergoes 4 cell divisions?(CB2a)	8. A seedling weighing 5 g was kept on the shelf of a garden centre. By the time it was sold it weighed 45 g. What was its change in mass as a percentage? (CB2c)	9. What is a synapse? (CB2f)
10. What benefit does the reflex arc give? (CB2f)	11. What word describes the medical condition caused by uncontrolled cell division? (CB2a)	12. What is the role of the myelin sheath in neurones? (CB2e)
13. Name two risks of using stem cells in medicine. (CB2d)	14. Name the neurones, in order, involved in the reflex arc. (CB2f)	15. What are the stages of growth in animals? (CB2b)

1. Name an example of a gamete (CB3a)	2. List these in order of size: gene; organism; chromosome; genome; complementary base; nucleus; cell. (CB3b)			
3. Give the complementary strand of DNA for one with the sequence of bases AATTCAGTG (CB3b)	 4. Describe the by meiosis (CF) • • • 	ne cells produced 33a)	5. Name the sha strands of DNA f	ape that the two form. (CB3b)
6. Name the bond that forms between complementary bases in DNA. (CB3b)	7. Mapping a person's genome can indicate their risk of developing certain diseases. State something else it could identify: (CB3b)		 8. An allele for the colour of a flower is represented by the letter R. Write out the genotype of a flower that is a) heterozygous and b) homozygous recessive (CB3c) a) 	
			b)	
 9. What is the function of ethanol when extracting DNA from fruit? (CB3b) 11. Give some examples of characteristics in humans that 	10. Draw a ge human being	enetic cross diagram t born male is 50%. (Cl	to show that the p	probability of a
show continuous variation. (CB3f)				
12. Organisms with the allele g suffer fro disease. Draw a Punnett square to show chance that the offspring of parents with and Gg will be a carrier for the disease. (C	m a recessive percentage genotypes GG Ɓ3d)	cc Cc Cc 13. This is a pedigro disease was inherit a) Write in the three	cc cc ee chart showing ed in a family. (CB e missing genotyp	Normal male Affected male Normal female Affected female Affected female Affected female how a recessive 3d)

Unit 4 Questions

 What genus does <i>Homo</i> erectus belong to? (CB4a) 	2. State the age of the following hominids (CB4a) Australopithecus afarensis ('Lucy'):				
	Homo Sapiens ('Modern man'):				
	Homo Habilis ('Handy man'):				
	Ardipithecus ramidus ('Ardi'):				
3. Describe the stages in selectively breeding an animal (CB4d)	4. Name the two pieces of evidence for human evolution (CB4a)		ion	5. What does (CB4d)	GMO stand for?
	6. Suggest a s genetic engine	Suggest a simple definition for etic engineering (CB4d)		7. Suggest a d characteristic a be selectively l	esirable a plant crop might bred for: (CB4d)
 8. Define evolution (CB4a) 9. Name a risk associated with genetic engineering (CB4e) 	 10. Match the that can be cland that ca	e five kingdoms with the properties of the organisms assified as being in that kingdom (CB4c) Unicellular (single-celled). Flexible cell walls. Cells have no nucleus . Multicellular. Cells have a nucleus. No cell walls. Multicellular. Cells have a nucleus. Cell walls made of cellulose. Chloroplasts. Mostly unicellular, some multicellular. Cells have a nucleus. Variety of cell types. Unicellular or multicellular. Cell wall (not made of cellulose). Cells have a nucleus.			
11. (Higher tier) Describe the steps in ger engineering a bacterium (CB4e)	netically	12. Add the that it make Cells have no nucleus	s sense	lomains to this v (CB4c)	Venn diagram so

Unit 1 Grid Answers

 What three things are present in plant cells but not animal cells? (CB1b) CELL WALL, VACUOLE, CHLOROPLAST/ CHLOROPHYLL 	2. What is the function of the cell membrane? (CB1b) CONTROLS WHICH SUBSTANCES ENTER AND EXIT THE CELL	3. What is the special shape on the outside of an enzyme called? (CB1f) ACTIVE SITE
4. What do animal cells have that bacterial cells do not? (CB1d)	5. What two-word phrase describes the role of enzymes in the body? (CB1e) BIOLOGICAL	6. A cell in a picture measures 15mm across. The magnification in the photograph is x1000. What is the actual size of the cell? (CB1a)
	CATALYST	0.015 mm
7. Lipase is an enzyme that digests fats. What two things does fat break down into? (CB1e)	8. What is the role of chloroplasts in plant cells? (CB1b)	9. What can be done to samples of cells to make them more visible under a microscope? (CB1a)
FATTY ACIDS AND GLYCEROL	WHERE PHOTOSYNTHESIS	ADD A STAIN
	HAPPENS	
10. Name one feature of sperm cells that helps them perform their function. (CB1c) >LONG TAIL/FLAGELLUM >MANY MITOCHONDRIA FOR ENERGY >ACROSOMES ON HEAD TO BURROW INTO EGG	HAPPENS 11. Draw a labelled lock and key m protease enzyme on a molecule of PROTEIN AMII PROTEASE	nodel showing the effect of a protein. (CB1f)

Unit 2 Grid Answers

 Which form of cell division is used for growth and repair? (CB2a) 	2. What two parts of the human body make up the central nervous system? (CB2e)	3. What process is involved in the growth of plants but not animals? (CB2c)
MITOSIS	>BRAIN	ELONGATION
	>SPINAL CORD	
4. What is special about embryonic stem cells? (CB2d)	5. Which two parts of the nervous system are missing from this stimulus? response	6. Describe the cells produced by mitosis. (CB2a)
THEY ARE	pathway? (CB2e)	> TWO DAUGHTER
UNDIFFERENTIATED/ UNSPECIALISED (they	Stimulus > RECEPTOR > sensory neurone > CNS >	CELLS > GENETICALLY
can change into any	MOTOR NEURONE > effector > response.	
 How many daughter cells are produced by mitosis if a cell undergoes 4 cell divisions? (CB2a) 	8. A seedling weighing 5 g was kept on the shelf of a garden centre. By the time it was sold it weighed 45 g. What was its change in mass as a percentage?	9. What is a synapse? (CB2f) A GAP/JUNCTION BETWEEN
16	(CB2c)	NEURONES.
	(45 -5)/5 * 100 = 800%	
10. What benefit does the reflex arc give? (CB2f)	11. What word describes the medical condition caused by uncontrolled cell division? (CB2a)	12. What is the role of the myelin sheath in neurones? (CB2e)
> FASTER RESPONSE		INSULATOR that SPEEDS
> PROTECTS	CANCER	UP conductance of
HARM		electrical impulse down the axon.
13. Name two risks of using stem cells in medicine. (CB2d)	14. Name the neurones, in order, involved in the reflex arc. (CB2f)	15. What are the stages of growth in animals? (CB2b)
> REJECTION by the recipient of a transplant	SENSORY, RELAY, MOTOR	CELL DIVISION AND DIFFERENTIATION
> CANCER		

Unit 3 Grid Answers

1. ga	Na met	me an e :e (CB3a)	xample o	fa	2. List these in order of size: gene; organism; chromosome; genome; complementary base; nucleus; cell.				
SI P(PEF DLI	RM CEI Len	LL/ EGO	G CELL/	ORGANISM ? CELL ? NUCLEUS ? GENOME ? CHROMOSOME ? GENE ? COMPLEMENTARY BASE.				
3. sti se	Giv and que	e the co l of DNA nce of ba	mplemer for one v ases AAT	ntary vith the TCAGTG	4. Describe th by meiosis:	ne cells produced	5. Name the shape that the two strands of DNA form.		
Т	Т	ΑΑ	GTC	AC	FOUR. GENETICALL HAPLOID.	Y DIFFERENT.	DOUBLE HELIX		
6. be in H	Nai twe DN/	me the b en comp A. ROGI	ond that plementa	forms ry bases ND	7. Mapping a can indicate tl developing ce State somethi identify:	person's genome heir risk of rtain diseases. ng else it could	 8. An allele for the colour of a flower is represented by the letter R Write out the genotype of a flower that is a) heterozygous and b) homozygous recessive 		
					WHICH MI	EDICINES			
					MIGHT W	ORK BEST TO	a) Rr I	o) rr	
0	W/h	at is the	function	of	TREAT THEM				
9. et fro	han bm f	anol when extracting DNA human being fruit?				born male is 50%.	to show that th	e probability of a	
IT O	PR UT (ECIPIT/ OF THE	ATES TH	E DNA ION	$(\mathbf{X}\mathbf{X})$ $(\mathbf{X}\mathbf{Y})$				
11. Give some examples of characteristics in humans that show continuous variation.				es of ns that ion.	(X) (X) (Y)				
HEIGHT/ WEIGHT/ HAIR XX XY XX XY									
LENGTH/ etc.									
disease. Draw a Punnett square to show percentage			percentage	· · · · · · · · · · · · · · · · · · ·					
chance that the offspring of parents with genotypes G and Gg will be a carrier for the disease.			genotypes GG			Anecceu male			
				1		0 0		Affected female	
Г		G	g	-					
	G	GG	Gg			13. This is a pedigr	ee chart showir	ng how a recessive	
I									

disease was inherited in a family. a) Write in the three missing genotypes

50% chance

G GG Gg

Unit 4 Grid Answers

1. What genus does Homo	2. State the age of the following hominids (CB4a)					
erectus belong to? (CB4a)	Australopithec	Australopithecus afarensis ('Lucy'): 3.2 mya				
	Homo Sapiens ('Modern man'): 0.5 to 0 mya					
ното	Homo Habilis ('Handy man'):		2.4 to 1.4 mya			
	Ardinithecus ra	, midus ('∆rdi'	, '}• 4	4.4 mva		
3. Describe the stages in	4. Name the t	wo nieces (<u></u> of	5. What does	GMO stand for?	
selectively breeding an animal	evidence for human evolution			(CB4d)		
(CB4d)	(CB4a)					
	Fossils			Genetically	y modified	
Identify a desirable	Stone tools			organism		
characteristic that is a result						
• Select only individuals with	7. Suggest a s	imple defin	ition for	8. Suggest a desirable characteristic a plant crop might be selectively bred for:		
that characteristic to breed	genetic engine	eering (CB4	d)			
together.						
Select the offspring that best	Changing	the <mark>geno</mark>	me of	Yield. Disea	se resistance.	
show the desirable	one organ	ism by		Herbicide/pesticide resistance. Growth rate.		
characteristic and repeat the	inserting	enes fro	m			
process for several	another organism into it			Flavour. Coping with environment (drought etc.)		
generations.						
9. Define evolution (CB4a)	10. Match the five kingdoms with the properties of the organisms					
A gradual change in the	that can be classified as being in that kingdom (CB4c)					
characteristics of a species	Animals Unicellul walls. Ce		ar (single-celled). Flexible cell Ils have no nucleus .			
over time.						
11. Name a risk associated with	Plants Multicell			ular. Cells nave a nucleus.		
genetic engineering (CB4e)	Prokarvotes Multice		Multicell	lular. Cells have a nucleus.		
Cross-breeding with wild plants	Cell walls			made of cellulose. Chloroplasts.		
with unknown consequences.	Fungi Mostly u Cells hav			nicellular, some multicellular.		
Long-term nealth risks of eating				e a nucleus. Variety of cell types.		
Companies can trademark	Protists Unicellula			ar or multicellular. Cell wall (not		
GMOs and charge too much			made of o	cellulose). Cells	have a nucleus.	
money for them.						
12. (Higher tier) Describe the steps in gen	netically	13. Add tl	ne three o	domains to this	Venn diagram so	
 Use restriction enzymes to cut ou 	that it mal	kes sense	(CB4c)			
gene from an organism and leave	sticky ends.			\sim		
Use <u>restriction enzyme</u> to cut ope						
from the bacterium, leaving corresponding						
SUCKY ENDS.				Se la companya de la comp		
ends of the desired gene with the	se on the			A		
plasmid, effectively adding the ge	ene to the		`	V /		
plasmid.		Cells have	e		There are unused	

no nucleus

sections of DNA

• Reinsert the plasmid into the bacteria

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BBC bitesize	 Choose Combined Science, even if you have chosen separate science for your option next year, as you will only be tested on combined science content in year 10 There are information, quizzes, exam style questions, and podcasts to help you 	
Save My Exams	 Again, choose Combined Science and Edexcel to see the information relevant for your exams 	
MME revise	 Find information, exam-style questions and revision cards 	
CGP 10- minute tests	 Multiple choice, 10-minute tests, easily done when travelling (by car or bus!) or when waiting for a short period of time!! It is not possible to select which topics you are tested on, so some of the questions are for year 11 topics 	