LAB MANUAL QUESTIONS

ANSWER KEY

LAB 1

Section B

6. Through the microscope it is upside down and backwards

7. a. To the right
   b. To the left
   c. Toward you
   d. Away from you

Section C

1. a. 40X (M1)
   b. 100X
   c. 400X (M2)

2. Answers will vary depending on your microscope and estimate of the diameter in d (D1).

LAB 2

Answers for these labs will depend on the size of your sample.

LAB 3

Section A

solute: the solid, liquid, or gas dissolved into a liquid
solvent: the liquid into which a solid, liquid, or gas (the solute) is dissolved
solution: the mixture of one or more solutes dissolved in a solvent
diffusion: the movement of a substance from an area of high concentration to an area of low concentration
equilibrium: the even distribution of a substance such that the concentrations are equal everywhere in an area
osmosis: the diffusion of water across a semipermeable membrane
Brownian motion: the innate ability of molecules to randomly move about
tonicity: a measure of the concentration of a solute in water outside the cell relative to inside the cell
hypertonicity: when the solute concentration is high outside the cell relative to the inside
hypotonicity: when the solute concentration is low outside the cell relative to inside
isotonicity: the solute concentration is the same both inside and outside the cell

Section B

9-10. The bag in the hypertonic solution lost weight because water diffused out of the bag. It did so because water was moving from a high concentration of water (inside the bag) to an area of low concentration of water (outside the bag)
The bag in the hypotonic solution gained weight because water diffused into the bag. It did so because water was moving from a high concentration of water (outside the bag) to an area of low concentration of water (inside the bag).
The bag in the isotonic solution didn't gain or lose weight because there wasn't a gradient of high to low water concentration. Therefore there was no net movement of water.

LAB 4

Section A
turgidity: a term to describe the plumpness and firmness plant cells are because of turgor pressure. (high turgidity—plump and firm; low turgidity—not very plump and firm)
plasmolysis: the shriveling of a cell due to loss of water
cytolysis: the bursting of a cell due to an influx of water

Section C
3. When thermal energy (temperature) of a substance is increased then Brownian motion increases. So the boiling water sped up Brownian motion and sped up the diffusion of the Tea.

Section D
The salt-soaked celery stalk feels more bendable and rubbery because all the plant cells have lost turgor pressure due to plasmolysis. The fresh-water soaked celery stalk is firm and crisp because the plant cells gained water and increased turgor pressure.

Section E
2. 5. As the salt water is wicked under the coverslip, the leaf cells will suddenly experience a hypertonic solution. The cells will immediately lose water. If you keep it in focus, you will see cell membranes peel away from cell walls and chloroplasts will be packed together as each cell shrivels (plasmolysis) due to water rushing out of each cell. The cell walls will keep their normal shape.

LAB 5

enzyme: a protein whose shape and chemical properties give it the ability to greatly speed up particular chemical reactions
active site: an indentation on an enzyme's surface where substrate(s) temporarily attach to the enzyme and react to form the product(s)
substrate: the reactant that temporarily attaches to an active site of an enzyme in which the reaction occurs
denaturation: the process of an enzyme losing its proper shape due to heat or some other factor
non-competitive (allosteric) inhibition: the shutting down of enzyme activity due to a non-substrate binding to the allosteric site

Section B
29. Catalase activity was at a maximum at room temperature. On ice, the catalase activity was lower because Brownian motion was reduced which caused the reaction to slow down; therefore less product was made. At low pH, the enzyme was completely or partially denatured; therefore it was unable to do the reaction. If some oxygen was made, that means not all the enzyme was denatured. The heavy metal (copper) binds to the allosteric site which indirectly deforms the active site and prevents the reaction (this is called allosteric inhibition). If there isn't

enough heavy metal ions to inhibit all the enzyme molecules then some product will still be made.

LAB 6

Section A
gene: a segment of DNA that codes for a specific protein or for a specific RNA
nucleotide: the basic unit of DNA and RNA that is made up of a sugar, phosphate, and nitrogenous base
DNA replication: the process by which DNA is used as a template (pattern) to copy itself
DNA polymerase: an enzyme that slides down single-stranded DNA unzipped by Helicase, reads the exposed bases, and builds a complimentary strand from the nucleotide stockpile
RNA transcription: the process by which a segment of DNA (a gene) is used as a template to make a copy of RNA
RNA polymerase: an enzyme with the ability to temporarily unzip the double helix so as to read a segment of the DNA strand and enzymatically construct an RNA by base-pairing RNA nucleotides with the exposed DNA bases.

Section B
3. Helicase
4. DNA polymerase
5. The complimentary new daughter strand for the upper parental strand is: CATTACACTTAACGTCTTAAGTCACTT (which is just like the lower parental strand)
And the complimentary new daughter strand for the lower parental strand is: GTAATGTGAATTGCAGAATTCAGTGAA (which is just like the upper parental strand)

Section C
7.
a. in the nucleus
b. RNA polymerase

LAB 7

Section A
protein translation: the process by which a ribosome makes a protein according to the instructions contained in mRNA
ribosome: a complex assembly platform for making proteins within the cell
mRNA: the type of RNA that contains the information encoding a protein
codon: groups of three nitrogenous bases in mRNA coding for one amino acid
tRNA: the type of DNA that performs the task of capturing specific amino acids and delivering them to the ribosome for assembly into proteins as specified by the mRNA
anticodon: the three loose bases on tRNA which are designed to pair base-pair with the codons of mRNA
mRNA binding site: The area on the ribosome designed to bind the mRNA that is adjacent to the P and A site
P site: the first space on a ribosome that is aligned with a codon to which tRNA binds
A site: the second space on a ribosome that is aligned with the next codon to which tRNA binds
peptide bond: the bond linking two amino acids

Section C
1. GGU | AUC | GUG | CAA | UGU | UGC | ACU | UCC | AUU
2. The eight amino acids are Gly, Met, Val, Gln, Cys, Thr, Ser, Ile.
a. protein translation occurs at the ribosomes
b. the amino acid AUG codes for Met
c. the amino acid CAU codes for His
d. mRNA contains the information for creating a protein
e. a peptide bond
f. tRNA gets amino acids and delivers them to the ribosome to make proteins
g. The tRNA's anticodon hooks to the mRNA's codon
h. It is an assembly platform for making proteins
i.
a. Protein
b. Ribosomal RNA (rRNA)

LAB 8

Section A
operon: any gene or set of genes that is turned off or on as a single unit
repressor: a protein supplied by the cell that serves as a roadblock to prevent RNA polymerase from transcribing a particular gene or set of genes
operator: a region of DNA where a repressor protein binds and blocks RNA polymerase
promoter: the segment of DNA to which RNA polymerase initially binds before constructing an RNA strand
lactose (inducer): it is a disaccharide that binds to the repressor protein, causing it to fall off of the operator. The RNA polymerase is now free to transcribe the genes because the repressor is no longer blocking it.
β-galactosidase (lactase): an enzyme that hydrolyzes lactose
permease: a membrane protein protein that serves as a gate for lactose to enter the cell

LAB 9

Section A
plasmid: a small hoop of DNA in a prokaryotic cell (compared to the nucleoid) containing extra genetic information, often used as a vector to introduce a gene of interest into a recipient cell in recombinant DNA technology
restriction enzyme: an enzyme that cuts DNA at specific sequences and restricts foreign DNA from successfully invading the cell, used often in recombinant DNA technology, opposite of DNA ligase
sticky ends: single-stranded overhangs of cut pieces of DNA that base pair readily with complimentary sticky ends
DNA ligase: an enzyme designed to splice any matching sticky ends of DNA together
transformation: when a gene of interest has been inserted into and been expressed by the recipient cell, usually refers to naked DNA taken up by a cell; other types go by different names like transduction or conjugation
conjugation: a type of transformation whereby DNA is inserted into another bacterial cell through a pilus

transduction: a type of transformation that uses virus particles as a vector to insert foreign DNA into a cell

LAB 10

Section A

interphase (include G1, S, GS): the period of time when the DNA is uncoiled and in which normal cellular activity and cell growth occur; G1 (gap 1) is normal cell growth and activity; S (synthesis) is DNA replication; and G2 (gap 2) is cell growth, synthesis of proteins, particularly important to mitosis

mitosis (include prophase, metaphase, anaphase, and telophase): the process by which one nucleus divides into two nuclei: prophase - uncoiled DNA (chromatin) coils into chromosomes, the nuclear envelope disintegrates, the spindle forms (microtubules) and attaches to the chromosomes at the centromere, chromosomes are jockeyed towards the spindle equator by the spindle; metaphase - two-copy chromosomes are neatly aligned along the spindle equator; anaphase is when the two-copy chromosomes split and sister chromatids (one-copy chromosomes) migrate to opposite ends of the cell; telophase - new nuclear envelope forms around the two clusters of sister chromatids (one-copy chromosomes) and uncoil into chromatin

cytokinesis: actual dividing of the original cytoplasm into two separate compartments (occurs during telophase)

Section C

7. Six chromosomes, two-copy
9. Six chromosomes
10. One-copy
11. No. It started with six and ended with six
14. No, because each chromosome is only one-copy.
15. Six
16. DNA replication
17. DNA-replication must occur so that one-copy chromosomes can become two-copy
20. In cleavage furrowing, various cytoskeletal elements form an apparatus that pinches in the membrane around the plane of division like a drawstring and the cell splits into two compartments. In cell plate formation, Golgi bodies pinch off lots of little cellulose vesicles which congregate along the plane of division and form a cell plate which eventually connects to the cell wall.

LAB 11

Section A

meiosis: a special kind of nuclear division for sexually reproducing creatures that insures that the resulting cells have the haploid number of chromosomes

homologous: a pair of chromosomes that are very similar to each other in size, shape, and the genes they carry

diploid: when a cell has two complete sets of chromosomes

haploid: when a cell has one complete set of chromosomes

reduction division: the division in meiosis when a reduction in ploidy occurs (meiosis I)

gamete: cells that unite to produce a zygote (sperm and egg)
spore: a reproductive unit of many organisms composed of one cell that is often dispersed through the air

Section C
5.
a. a. Six chromosomes
b. Two-copy
c. Three pairs
7.
a. Three chromosomes
b. Two-copy
c. Haploid
8. Reduction division
11. They only have one chromosome from each homologous pair
13. Three
18.
a. Three
b. Haploid
20.
a. Three chromosomes
b. One-copy
c. No, it did not reduce the number of chromosomes

LAB 12

Section A
allele: a different version of the same gene
dominant and recessive: a dominant allele is expressed in the presence of another allele; a recessive allele is an unexpressed allele in the presence of a dominant allele
homozygous: having two identical alleles in a genotype
Punnett square: a square devised by Reginald C. Punnett which graphically shows the possible genotypes of the offspring of a particular cross
diploid (review): when a cell has two complete sets of chromosomes
haploid (review): when a cell has one complete set of chromosomes
genotype: the combination of alleles for any given trait or traits
phenotype: the outward expression of a genotype
law of segregation: when an organism produces gametes (during meiosis), the two alleles separate so that each gamete gets only one of the two
law of independent assortment: when an organism produces gametes, alleles on one pair of homologous chromosomes separate independently compared to how alleles separate on another pair of homologous chromosomes (so more combinations of gametes can be produced)

Section B
1. 1/4 green
2.
a. 3/16 green round
b. 3/16 yellow wrinkled
3.
a. 2/16 fangless, six-headed
b. 1/16 fangless, ten-headed
c. 3/16 fanged, two-headed

LAB 13

Section A
Carolus Linnaeus: Swedish naturalist and father of modern taxonomy who classified thousands of animals, plants,

and minerals in Systema Naturae and his botanical work in Species Plantarum; he developed the basic hierarchy of classification consisting of five ranks or taxa, as well as the binomial system of naming
kingdom: the most general taxon after domain, consisting of Plantae, Animalia, Protista, Fungi, Archaebacteria, and Eubacteria
phylum: the next taxon under Kingdom
class: the next taxon under Phylum
order: the next taxon under Class
family: the next taxon under Order
genus: the next taxon under Family
species: the next taxon under Genus, not to be confused with baramin, the created kinds of Genesis
scientific name: the genus and specific epithet together
Specific epithet: the second part of a scientific name or binomial.

LAB 14

Section A
pseudopod: a little cellular protrusion in sarcodines used for locomotion and for feeding through phagocytosis
oral groove: the funnel-shaped area in which ciliates collect food prior to phagocytosis: endocytosis on a large scale in which a cell attempts to engulf entire cells or cell fragments for food
food vacuole: a vacuole formed during the endocytosis of food
contractile vacuole: a vacuole in unicellular creatures that ejects water from the cell through a membranous canal
cilia: short versions of flagella
pellicle: a sophisticated network of proteins beneath the cell membrane; contractile pellicles enable certain unicellular protists to change their shape; some pellicles do not contract but grant the cell a certain shape
chloroplast: an organelle found within plants and algae that is responsible for carrying out the process of photosynthesis

Section C
a. Yes
b. Yes
c. Variable answers but most are attached to some debris by their skinny tapered end. The opposite bell-shaped end has longer cilia that beat furiously creating currents that suck smaller organisms into its oral groove.

LAB 15

Section A
stolon: a fungal hypha that grows over the surface of a food source prospecting for new sources of food
sporangiophore: a specialized fungal hypha that bears the sporangium
sporangium: a structure that contains spores
spores: a reproductive unit of many organisms composed of one cell that is often dispersed through the air
rhizoids: root-like fungal hyphae that grow into and consume food discovered by stolons
zygosporangium: in zygomycetes, when two gametangia merge into one compartment and form a thick walled structure

(containing diploid nuclei) that can withstand adverse environmental conditions
ascoma: the fruiting body of an ascomycete
ascus: a cell that produces and contains ascospores in an ascoma
ascospores: the spore of an ascomycete
condidiophore: branching hyphae bearing conidia
conidia: asexual spores produced by Ascomycete fungi
basidioma: the fruiting body of basidiomycetes
basidium: a cell that produces and bears basidiospores in a basidiomycete
basidiospores: the spore of a basidiomycete
hymenium: the spore-producing surface of an ascoma or basidioma
lichen: a three-way mutualistic relationship between an ascomycete fungus, a basidiomycete fungus, and a green or blue-green algae

Section E
2. Crustose: these lichens look like they are spray-painted on the surface and they grow in such a way that they are tightly affixed to the surface
Foliose: these lichens have a flaky or leafy appearance
Fruticose: these lichens have a bushy or branching appearance

LAB 16

Section A
osculum: the opening at the top of a sponge where water flows out
spongocoel: the centrally located cavity of a sponge
incurrent canal: areas in syconoid sponges into which water first flows before entering the radial canals
radial canal: areas in syconoid sponges that are lined with collar cells which generate the water current through the sponge
prosopyles: pores connecting the incurrent and radial canals of a syconoid sponge
collar cells: a flagellated cell that filters water and captures food in a sponge
polyp: one of two body types of cnidarians that's attached to a substrate (e.g., hydra)
medusa: one of two body types of cnidarians that is free floating (e.g., jellyfish)
epidermis: the outermost layer of cells on cnidarians
cnidocytes: a cnidarian cell type that contains nematocysts
nematocysts: stinging organelles within cnidocytes
gastrodermis: the inner layer of cells facing the gastrovascular cavity in cnidarians
mouth: the opening into the gastrovascular cavity of cnidarians
gastrovascular cavity: the internal cavity of cnidarians
pedal disc: the flat bottom of a polyp that sticks to the substrate with secreted mucus
jellyfish: a cnidarian with the medusa body form

sea anemones: cnidarians having the polyp body form belonging to the class Anthozoa
coral: miniature sea anemone-like cnidarians that live and grow as colonies (also belong to Class Anthozoa)

Section D
1. the medusa body form
2. the polyp body form
3. the polyp body form

LAB 17

Section A
flukes: a flatworm parasite that causes many horrible diseases; its first host is a mollusk and its last host is a vertebrate
tapeworms: parasitic flatworm with no digestive tract that often hangs onto the lining of a host's gut and absorbs the predigested nutrients through its body surface
scolex: a head-like structure that enables a tapeworm to attach to the lining of a host's gut
proglottid: a segment of a tapeworm's body that contains both egg and sperm
planarian: a free-living flatworm that is a predator and scavenger in freshwater, marine, or moist terrestrial environments
nematodes: a non-segmented worm that has a complete digestive system, is round in cross section, and ranges from microscopic to over 1 meter in length
segmented worms: a worm with a body divided into segments with bristles and sometimes fleshy appendages sticking out of their sides for locomotion
clamworm: a predatory polychaete in Phylum Annelida

Section B
1. The main characteristics of Phylum Platyhelminthes are a dorso-ventrally flattened body, no body cavity, and an incomplete digestive system
3. A mouth and gastrovascular cavity
4.
a. A scolex and proglottids
b. Class Trematoda
c. Class Cestoda

Section C
a. They are wriggling like eels or snakes. They are tapered to a point on both ends.
b. They are round in cross section.

Section D
1.
a. Where it lengthens it becomes skinny. Where is shortens it becomes thicker.
b. Longitudinal muscles
c. Earthworms consume soil
2.
a. Bristles
b. They provide traction as the earthworms move in their burrows.
3.
a. Leeches and clamworms both have a body divided up into segments.
b. On both ends: one is the posterior sucker and the other is the anterior sucker
c. Yes, they have bristles.
d. They are longer and more numerous.

LAB 18

Section A
mantle: epidermis of a mollusk
mantle cavity: the space between the visceral mass and the mantle of a bivalve (and all mollusks)
visceral mass: the part of a bivalve (and all mollusks) containing most of the organs
heat-foot: a well-developed head with arms and tentacles mounted on it (most developed in cephalopods)
incurrent and excurrent siphon: two apertures that allow water to flow in and out of a bivalve's mantle cavity
radula: the rasping tongue-like organ of many gastropods and cephalopods
pneumostome: a lung-like cavity found in land-dwelling gastropods
ink sac: an ink-excreting sac attached to the rectum of a cephalopod

LAB 19

Section A
tegmina: the protective forewings of an orthopteran
elytra: Thickened forewings that protect the membranous hindwings of a beetle; they do not overlap, but meet in the middle and form a straight line down their back
proboscis: the feeding siphon of lepidopterans
chelicerae: a small pair of feeding appendages in arachnids and horseshoe crabs
pedipalps: the second pair of appendages attached to an arachnid's cephalothorax
spinnerets: the organ through which spider silk is ejected

Section B
2. The metathorax
4. The mesothorax
5. The prothorax
6. The mesothorax and the metathorax

Section C
1.
a. Two pairs of legs per segment
b. They do not sting.
c. They are herbivores.
2.
a. One pair of legs per segment
b. Yes
c. A pair of poison claws
d. They are predators.

Section D
1. The cephalothorax
2.
a. The chelicerae
b. The pedipalps
c. Four pairs

Section E
1.
a. The cephalothorax
b. It is made of many tiny eyes
c. Antennules
d. They are much longer and don't have two branches
e. five pairs
f. chelipeds
3.
a. swimmerets
b. five pairs

c. telson
d. uropods

LAB 20

Section A
central disc: the central part of a sea star from which the arms radiate outward
arms: the radiating appendages that extend from the central disc
ambulacral grooves: grooves radiating from the mouth on the underside of the central disc and arms of a sea star from which tube feet emerge
water vascular system: an internal hydraulic system that controls the movement of tube feet in echinoderms
pyloric stomach: the central upper stomach of a starfish
cardiac stomach: the part of a starfish's stomach which is extruded out of its body to digest prey
papulae: thin-walled, fingerlike projections used for gas exchange on the outer surface of an echinoderm
pedicellariae: microscopic pincer-like structures on echinoderms that remove debris, larvae, and tiny animals that might otherwise settle on the echinoderm's surface

Section B
1. Five
2. Ambulacral grooves
3.
a. tube feet
b. water vascular
c. ampullae

Section C
The central disc of the brittle star is more distinct from the arms and it is covered by plates that look like a suit of armor.

Section D
1.
a. No it does not have a central disc
b. Their spines are much longer and are mounted on movable turrets so they can move around.
2.
a. They mostly eat algae but also may eat small, slow or sessile creatures
b. Aristotle's Lantern

Section E
a. No it does not have a central disc or arms
b. No, its spines are soft and fleshy
c. tentacles
d. The tentacles collect food
e. Tube feet

LAB 21

Section A
dorsal nerve cord: a nerve cord above the notochord in Chordates (becomes spinal cord in vertebrates)
notochord: a stiffening dorsal protein rod found in the embryos of all chordates; develops into the backbone in vertebrates (animals with a backbone: includes jawless, cartilaginous, and bony fish, as well as amphibians, reptiles, birds, and mammals)
pharyngeal slits: a slit found in the pharynx of some chordates that acts like a filter for feeding
dorsal fin: a fin on the back of a fish

caudal fin: the tail fin of a fish
pectoral fins: a pair of fins just behind a fish's head on either side of its body
pelvic fins: a pair of fins on the pelvic region of a fish
anal fin: a single fin near a fish's anus
gill slits: slits on the body surface where water exits the body after passing through the mouth, pharynx, and over the gill arches
gill rakers: comb-like structures on gill arches for filtering plankton out of water
operculum: a stiff flap that covers the gill arches of bony fishes

Section B
1. No, they are jawless
2. Seven pairs of gill slits
3. No
4. No
5. Hagfish

Section C
1.
a. Cartilage
b. Fish
c. The cartilage skeleton
2.
a. Yes, it has a jaw
b. Shark jaws are ossified cartilage. They are made very bone-like with calcium salt deposits but are technically not bone (see me about editing the textbook on p. 332)
3.
a. like tiny teeth
b. placoid
4. five pairs
6. skates, rays, sawfish, & chimaeras

Section D
1.
a. bone
b. their skeleton
2. The mouth is placed up front rather than on the underside.
3. These are larger and flatter scales and are arranged shingle-like over the skin
4.
a. Not like shark gill slits; only one pair of openings allows water to exit
b. operculum
c. no
5.
a. gill filaments; gas exchange
b. filtering plankton from the water

LAB 22

Section A
herpetology: the study of reptiles and amphibians
ectothermic: attains body heat from the environment
spermatophore: a tiny proteinaceous stalk produced by salamanders that is capped with a packet of sperm
amplexus: the mating embrace of frogs and toads with the male usually on the female's back
plastron: the lower shell of turtles
carapace: the upper shell of turtles; a decapod's single exoskeletal plate that covers its cephalothorax
osteoderms: a bony, dermal plate in reptiles

Section B:

1.
a. Smooth
b. No
c. A tail
d. Enlarged hind legs
e. The female salamander is inseminated by picking up the male's spermatophore with the lips of her cloaca, therefore salamander eggs are internally fertilized just before they are laid. The male frog sheds sperms onto her eggs as they pass out of her body so they are externally fertilized during amplexus.

Section C:
1.
a. scaly
b. yes
2.
a. Salamanders have moist skin, do not have scaly skin, have no claws on their toes, have a longitudinal vent (opening into cloaca), and no external ear openings. Lizards have dry scaly skin, claws on their toes, have a transverse vent, and external ear openings.
b. hemipenes
3.
a. yes
b. the neck and the skin at the base of the legs; it's variable between turtle species
c. yes
4. rectangular
5.
a. hemipenes
b. they have a single penis
6.
a. eyelids
b. external ear openings

LAB 23

Section A
sporophyte: in plant life cycles with alternating generations: the diploid (2N) plant generation that produces spores through meiosis
sporangium: a structure that contains spores
spores: a reproductive unit of many organisms composed of one cell that is often dispersed through the air
protonema: algae-like threads that result from the germination (and mitosis) of moss spores
gametophyte: in plants with alternating generations: the plant phase that produces either sperm or eggs or both
antheridium: the structure within a male gametophyte that produces haploid sperm by mitosis
archegonium: the structure within a female gametophyte that produces eggs by mitosis
frond: a fern leaf which grows from the rhizome
rhizome: a horizontal underground stem of a plant from which roots grow to anchor the plant to the soil and absorb water and nutrients
pinnae:
sorus (sori): a cluster of sporangia that forms a spot on the underside of a fern leaflet (several to many sori per leaflet)
annulus: a spore-launching structure built into the sporangia of ferns
prothallus: a bisexual gametophyte in ferns that develops both antheridia and archegonia

Section B
1.
a. haploid
b. diploid
c. sporangium
d. meiosis
3. haploid

Section C
2.
a. meiosis
b. haploid

LAB 24

Section A
male cone: a cone bearing many microsporangia (pollen sacs) containing pollen
microsporangium: a sack on a male cone that contains cells that go through meiosis to produce microspores, which eventually become microgametophytes
microgametophyte: pollen; a two to four-celled male structure in flowering plants and conifers that produces sperm
female cone: a cone bearing the ovules containing the eggs (after pollination, fertilization, and embryo development, the ovules become seeds)
ovuliferous scales: a seed-bearing scale on a female cone
ovule: an immature seed
megagametophyte: the haploid generation in conifers and flowering plants which produces eggs
sepals: the outermost leaf-like floral parts which enclose the petals
petals: the floral parts just inside the sepals (these are usually less leaf-like and more colorful)
stamen: the male reproductive structure inside the flower
anthers: the part of the stamen that produces and releases the pollen
filaments: the stalk-like part of the stamen that bears the anther
pistil: the female reproductive structure of the flower
stigma: the part of the pistil at the end of the style which receives pollen
style: the part of the pistil between the ovary and the stigma
ovary: the base of the pistil containing the ovules or seeds; it becomes the fruit when mature

Section B
2.haploid

Section C
3. pollination

LAB 25

Section A
ecology: the study of interactions between living creatures and their environment
abiotic factors: the non-living portion of an ecosystem
biotic factors: the living portion of an ecosystem
population: all members of the same species in a certain area

community: all the populations of a given area
ecosystem: a naturally defined area comprised of all its biotic and abiotic factors that function as an integrated whole
habitat: where a creature naturally lives
microhabitat: a specific portion of a habitat
ecological niche: a particular organism's entire way of life
predator-prey relationship: the prey provide food for the predator and the predator keeps the prey population in check
mutualism: two different species living together in a way that benefit each other
commensalism: when two creatures live together and one symbiont benefits and the other neither reaps benefits nor is adversely affected
parasitism: two different species living together in a way that benefits one and harms the other
competition: when two or more creatures are after the same resources
interspecific competition: competition between species
intraspecific competition: competition between individuals of the same species
exponential growth: the increase of a population assuming unlimited resources and no accumulation of factors that hinder reproduction
logistic growth: the pattern of population growth in a highly stable environment; population size reaches a plateau (carrying capacity) due to limited resources
carrying capacity: the maximum population size that a particular environment can sustain
food chain or web: Energy flow through a community
trophic level: a feeding level in a trophic pyramid
decomposers: bacteria and fungi involved in breaking down dead organic matter into simpler inorganic substances
detritovores: an animal that consumes small, dead fragments of plant and animal material

Section C:
1. interspecific competition
2. producer
3. primary consumer
4. The squirrel gets food, and the Douglas fir gets a few seeds planted by the squirrel (meant to be stored food but forgotten).
5. Cold temperatures
6. photosynthesis
7. the carbon cycle
8. parasitism
9. predator-prey relationship
10. Land monitors
11. intraspecific competition
12. Answers will vary but one clear example is the warthog and jackal feeding on a dead water buffalo carcass.
13. abiotic
14.

a. fungi
b. bacteria
15. parasitism
c. parasite
d. host
16. producer