



Welcome to Year 10 Information Evening



Welcome



Mr Eoin Kelly	Headteacher
Mrs Michelle Alexander	Deputy Headteacher; SLT Line Manager for KS4
Mr Owen Nichols	Assistant Headteacher; Teaching and Learning
Miss Guiheen	Head of Year 10 (Population A)
Miss Smith	Head of Year 10 (Population B)



Our school prayer

Gracious God,
Let us remain in harmony,
United together;
All of one heart and one will.
Let us be bond to one another
By the bond of love,
Respecting each other,
Helping each other,
And bearing with each other
In Jesus Christ.
For if we try to be like this,
Without doubt,
You, Lord God,
Will be in our midst.
Amen



Our Purpose

Our school theme for 2024-25 is 'Pilgrims of Hope' to reflect the Church year theme chosen by Pope Francis

Our Year 10 virtues are:

- ▶ **Autumn term – Attentive**
- ▶ **Spring term – Leading For Justice**
- ▶ **Summer term – Acting With Truth**



My commitment
to you



Governors' Fund

As a Voluntary Aided School this means that all **Capital Works** undertaken around the school are **10% funded by the parents**.

These works could not be undertaken without the Voluntary donation of parents to the school.

In recent years these works have included:

- T Levels - Refurbishment to accommodate T Level Nursing.
- Katherine Johnson Building - This houses T Level Digital, Business and T Level Science.
- New Roof at St Angela's.
- New Doors, Floors and Boilers in the St Georges Block.
- Complete renovation of our main kitchen /dining room.
- LED lighting throughout the Main School.

Additionally, The Fund contribute to the School's **Chaplaincy programmes** to sustain and develop the School's charism and ethos, and our **Laptop Scheme** which ensures all students have a laptop



This funding enables us to provide the high standards of our environment which is conducive to outstanding education and outcomes.

This donation amount takes into consideration the cost of **Capital Works**, our **Chaplaincy programmes**, and the **Laptop Scheme**. The donation also covers insurance and protection software to ensure that students are kept safe and not accessing inappropriate sites and content.

Without your donations we won't be able to supply all children with a new laptop.

We suggest a donation of £30 a month, for the duration of the student's education at the Ursuline, and an initial deposit of £30 for the registration of all students.

For families that can afford it, donations of higher values are welcome.

If your daughter qualifies for Free School Meals or if you have any financial difficulties, please contact the finance department to discuss.

We have received completed forms from many families, thank you. For anyone wishing to sign up please

complete the forms this week. If you have any questions or need help with the forms, contact our Finance Team at

Donations@ursulinehigh.merton.sch.uk



Miss Guiheen - Population A
Miss Smith - Population B



Tonight we'll cover

- ▶ Who's who in the Y10 tutor team
- ▶ How and when to contact the school
- ▶ How we will communicate with you
- ▶ Essential guide to learning at UHS
- ▶ Measuring progress in learning
- ▶ Pastoral Care
- ▶ Enrichment



The Year 10 Team

10 Angela	Gareth Davies (Science)	Gareth.davies
10 Bernadette	John Fitzgerald (Art)	John.fitzgerald
10 Catherine	Sulumenty Odhiambo (RE)	Sulumenty.Odhiambo
10 Francis	Georgia McNichol (Maths)	Georgia.mcnichol
10 Margaret	Jacob Tyler (Maths)	Jacob.tyler
10 Teresa	Niall Carton (Geography)	Niall.carton
10 Ursula	Caroline McColgan (Science)	Caroline.mccolgan



Contacting us

Please use email to contact us

- ▶ **Form tutors** - general enquires about the Ursuline, friendship issues, organisation, homework, clubs/enrichment, uniform, equipment, travelling to/from school, punctuality, trips/calendar events. (email address on previous slides)
- ▶ **Head of Year or Pastoral Support Assistant** - Mental health, bullying, safeguarding, online safety, absence request forms, request for your daughter to receive school counselling/educational well-being practitioner, financial support/free school meals.
Erin.Guiheen@ursulinehigh.merton.sch.uk~
Paige.Smith@ursulinehigh.merton.sch.uk Heads of Year
- ▶ Sylvia.Brown@ursulinehigh.merton.sch.uk pastoral support 0203 908 3105 (non teaching)
- ▶ **Ms Young** - Attendance and punctuality/lateness. All absences and lates must be reported via email or phone no later than 8:30am.
Bernadette.young@ursulinehigh.merton.sch.uk 0203908 3144
- ▶ **Subject teachers** must be contacted for any subject specific enquiries.
- ▶ **Our IT Helpdesk** is available to help with any parent portal, laptops, and other IT queries. laptop.doctor@ursulinehigh.merton.sch.uk
- ▶ All staff contact details can be found on the [Ursuline directory](#) on our website and in the year group curriculum guide.



Parental Engagement and Communication

- We are committed to ensuring parents/carers are engaged in supporting their daughter's academic progress and personal development.
- Parents are given many opportunities over the year to meet with their daughters' teachers and tutors to discuss their progress, and in receive regular progress reports.
- We provide opportunities for parents/carers to learn more about the world their daughter's live in, through resource sharing, information evenings, and specialist sessions on issues such as online safety and mental health.
- We are committed to effectively communicating with our parents and carers about school life and we use a range of mediums incl. email, website, information meetings, communications from the Head and other staff, our suite of newsletters and social media.
- We communicate with all primary guardians via email. There can be more than 1 primary guardian per student. Exceptions include consent forms for trips and parent meeting bookings – here we communicate with 1 guardian only. This is to avoid receiving two responses.
- We communicate with the email addresses on record. Do let us know if you details do change.
- Emails will come from Ursuline High School or a staff member. We recommend notifications are enabled, that you add us to your safe senders list, and remember to check your junk/spam to ensure nothing important/urgent is missed.
- Please check for emails from the school daily, to ensure you are up to date on news from the school.
- We use a suite of portals to support various elements of our students' learning journeys, including Arbor (records & reports), Evolve (consent forms/trips), and ParentPay (lunches & other payments).
- If you're on Instagram and you don't already follow us, please do. You can find us @uhswimbleton. This is not compulsory – important communications will be shared directly.
- Visit the website to read more about our [Communications Strategy](#) and [Parent Portals](#).



Key dates for your diary

25th September - 12:45 early close for Open Evening

26th September - 9:25am start

9th October - 12:50 early close for 6th form open evening

17th October - KS4 and KS5 Parental Workshop online: media and safety.

24th October - 12:50 Early close for ARD

25th October - Academic Review Day

25th October - Half Term

4th November - Inset Day

5th November - Autumn B starts



Attendance & Punctuality

- ▶ We want the students to be in school wherever possible.
- ▶ We must know if your daughter is not attending by 8.30am as this is a safeguarding duty - either by phone or email Bernadette.young@ursulinehigh.merton.sch.uk 02039083144
- ▶ The school's attendance target is 96%
- ▶ We monitor all students, and if your daughter has an attendance below 94% you will be sent a letter
- ▶ Students with excellent attendance have a much higher chance of succeeding socially and academically
- ▶ Punctuality is monitored daily, any student who is late will receive a 30 mins detention on that day, the student and the parent will be notified by email by 11am, failure to attend will result in a Friday detention for an hour.
- ▶ If your daughter needs to leave school early, or is coming in late after an appointment, please email Bernadette.young@ursulinehigh.merton.sch.uk and ask her to bring the proof of the appointment.



Travel to and from school

- ▶ We **strongly** encourage all students to walk to and from Wimbledon or Raynes Park for onward travel.
- ▶ KS4 Students may use the Lower Downs Road bus stop
- ▶ Agreed use of 57 and 131 bus services for travel to Wimbledon and Raynes Park; 200 and other services should only be used by students whose homes are served directly by these routes.
- ▶ Students must be considerate of our neighbours regarding noise and must never enter a residents garden or sit on walls/railings.
- ▶ No gathering in Wimbledon or Raynes Park. Students to travel straight home.
- ▶ No more than 4 students together.
- ▶ Travel carefully (e.g using crossings, avoiding use of airpods/headphones etc).



Homework

- ▶ Students are set one homework per week for most subjects
- ▶ For English, Maths and Science they have two
- ▶ Students have, in general, a week to complete each homework
- ▶ All students have a planner and this is a very importance sources of information for parents
- ▶ Please review the planner weekly and sign



Mr Nichols - Teaching & Learning



Our approach to Teaching & Learning

- ▶ We have an ambitious curriculum with high academic rigour that ensures our students develop a lifelong passion for learning.
- ▶ Our curriculum is content rich, where students are taught the skills to retain their knowledge with fluency and are able to apply this knowledge creatively and with purpose.



A research-informed curriculum & pedagogy

- ▶ A research informed curriculum means that we use the latest research and evidence to ensure best teaching practice for Ursuline students.
- ▶ This involves:
 - ▶ ❖ The use of retrieval practice to embed knowledge in long term memory.
 - ▶ ❖ Feedback in a variety of styles that deepens the learning. Students are expected to act on this.
 - ▶ ❖ Modelling and scaffolding of work.
 - ▶ ❖ Ambitious and challenging curricula designed by subject specialist leads. Expect your daughter to struggle at times and get things wrong. This is how we learn.



Revision and

Revision and consolidation of learning **MUST** be ongoing – revision has to start now! (yes, even at the start of Year 10)

The only path to success in GCSE is hard work



Linear Learning

1. **Knowledge** — Flashcards/notes and revision materials throughout the course. Knowledge Mats.
2. **Learn** — Revise throughout the course and not just at the end. Flashcards should be used at all times.
3. **Apply** — Do as many questions as possible and use the mark schemes to adapt your revision materials.



Where to get this?

MS Teams – knowledge mats,
revision guides, practice questions,
syllabus.

*All of this is in the Year 10 Revision
Materials Team*



How can we revise?

- ▶ Active revision.
- ▶ Not passive - sitting and reading the work isn't enough.
- ▶ Re-writing the work isn't enough.
- ▶ Highlighting some printed text isn't enough
- ▶ When revision is passive, the students don't learn or understand the information in such a way that they can apply their knowledge to unfamiliar situations (AO3).
 - ▶ This can be worth 40% of your marks...



What not to do...

controls the permeability of the cells to water in this region.

of urea

get rid of the waste products of metabolism, especially nitrogenous waste as it is toxic if it accumulates. Many terrestrial mammals, including humans, excrete urea in the liver from carbon dioxide and ammonia. Excess amino acids are deaminated (removal of H_2 group). In a metabolic pathway, known as the ornithine cycle, the amino acids and carbon dioxide undergo a series of reactions, which result in the production of urea. Urea is transported in the blood to the kidneys, where it is removed in the urine.

urine

in the renal corpuscle. High blood pressure in the glomerulus forces water and small molecules (molecular mass less than 68 000 rmm) through the walls of the capillaries into Bowman's capsule into the lumen of the renal corpuscle. The capillaries are permeable due to the presence of pores between the cells of their walls and between the cells and through the basement membrane. The process of filtration in the nephron is assisted by specialised cells, the podocytes that line Bowman's capsule. Glomerular filtrate is produced at the rate of about 120 ml/min. About 99% of the filtrate is reabsorbed from the nephron.

The filtrate contains water, ions, urea, amino acids, glucose and some small molecules such as vitamins and hormones. It does not contain any blood cells or large molecules with a molecular mass more than 68 000. In the proximal convoluted tubule, glucose, amino acids and most of the water are actively reabsorbed into the capillary network. As a result of the active transport of water, water passes back into the capillary network by osmosis. About 50% of the filtrate is reabsorbed. The remaining 50% diffuses back into the blood, due to the concentration gradients. The remaining 50% is excreted in the urine.

Notes.

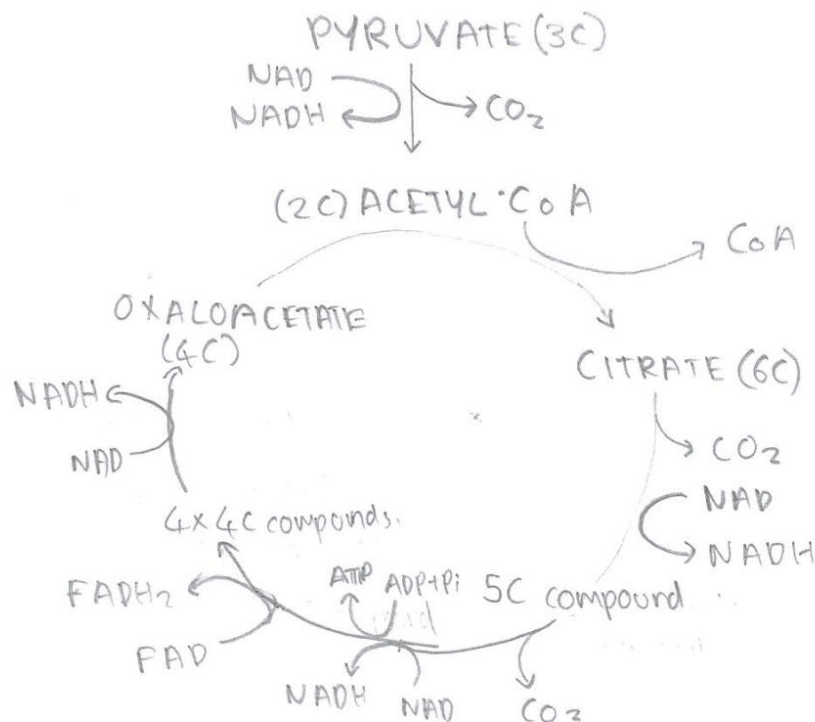
- ▶ This is not rewriting the work.
 - ▶ It's expressing it in a different format.
 - ▶ Convert a diagram to text.
 - ▶ Convert a text to a diagram
 - ▶ Create tables, flow charts and mind maps
 - ▶ Do simple bullet point summaries that cover just one page
 - ▶ Annotate work sheets or information sheets, don't just highlight the key words. Take ownership of anything printed.



Krebs cycle – look at the text and convert it to a diagram.

ical reactions carried out in the living cell; in most, including humans, it is essential for the oxidative breakdown of glucose and other simple sugars. The breakdown of glucose into carbon dioxide and water is a complex set of chemical reactions called carbohydrate catabolism, and the Krebs cycle is one of three major stages in the process, occurring after glycolysis and oxidative phosphorylation. This cycle, also known as the citric acid cycle, was named in recognition of the work of the German biochemist Hans Krebs, whose research into the cellular metabolism of glucose contributed greatly to the modern understanding of this aspect of metabolism. The name citric acid is derived from the first product generated by the sequence of reactions, citric acid. The reactions are seen to comprise a cycle in which citric acid is both the first product and the final reactant, regenerated at the conclusion of one complete set of reactions. Citric acid is a so-called tricarboxylic acid, containing three carboxyl groups (COOH). Hence the Krebs cycle is sometimes referred to as the tricarboxylic acid (TCA) cycle. The cycle begins with the condensation of one molecule of oxaloacetic acid and one molecule of acetyl CoA (a derivative of coenzyme A; see coenzyme). The acetyl CoA is derived from pyruvic acid, which is the final product of degradation of glucose in glycolysis. After the condensation of oxaloacetic acid and acetyl CoA react to produce citrate, which serves as a substrate for seven distinct enzymes. The reactions that occur in sequence and proceed with the formation of intermediate compounds, including succinic acid, fumaric acid, and malic acid. Malic acid is converted to oxaloacetic acid, which, in turn, reacts with yet another molecule of acetyl CoA, producing citric acid, and the cycle begins again. The citric acid cycle produces, simultaneously, two molecules of carbon dioxide and eight atoms of hydrogen as by-products. The carbon dioxide generated is an ultimate end product of the breakdown and is removed from the cell by the respiratory system. The hydrogen atoms are donated as hydride ions to the electron transport molecules, which allow for oxidative phosphorylation. In most higher plants, in certain microorganisms, and in *Escherichia coli*, and in the algae, the citric acid cycle is in a form called the glyoxylate cycle, so that the malic acid is a prominent intermediate, glyoxylic acid.

Diagram



ATP used; 0
ATP made; 1
NADH made; 3
FADH made; 1
CO₂ made; 2

Lesson 3

Electron Transport Chain – look at the diagram and convert it to text.

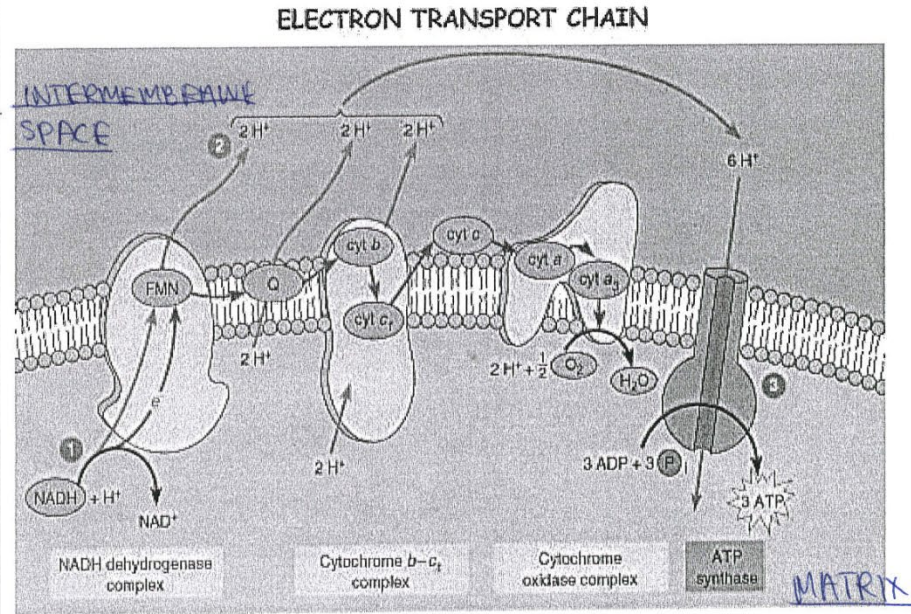
Text. This occurs using electron carriers embedded in the inner mitochondrial membranes which are folded into cristae for a greater surface area.

Reduced NAD and reduced FAD are reoxidised when they donate hydrogen atoms (which are split into protons and electrons) to the electron carriers.

The H^+ are pumped into the intermembrane space and are unable to travel back into the matrix. This creates a concentration gradient.

They can diffuse through ion channels associated with ATP synthase. This flow of protons is chemiosmosis. This stimulates oxidative phosphorylation: as protons flow through an ATP synthase enzyme, they drive the joining of $ADP + P_i$ to form ATP. Oxygen acts as the

Diagram



ATP used; 2
ATP made; 3
NADH made; 0
FADH made; 0
CO₂ made; 0

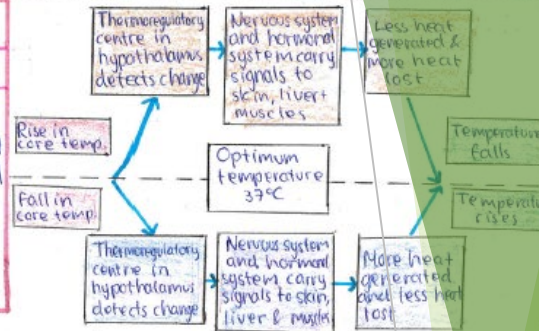
final electron acceptor and combines with hydrogen to make water.

Some good examples

COMMUNICATION - 4.1.1: F

Endothermy

+	-
constant body temp. activity possible non external temp. is cool. ability to inhabit warmer parts of wet	- lots of energy used - more food needed - less energy used for growth



- controlling temperature by negative feedback

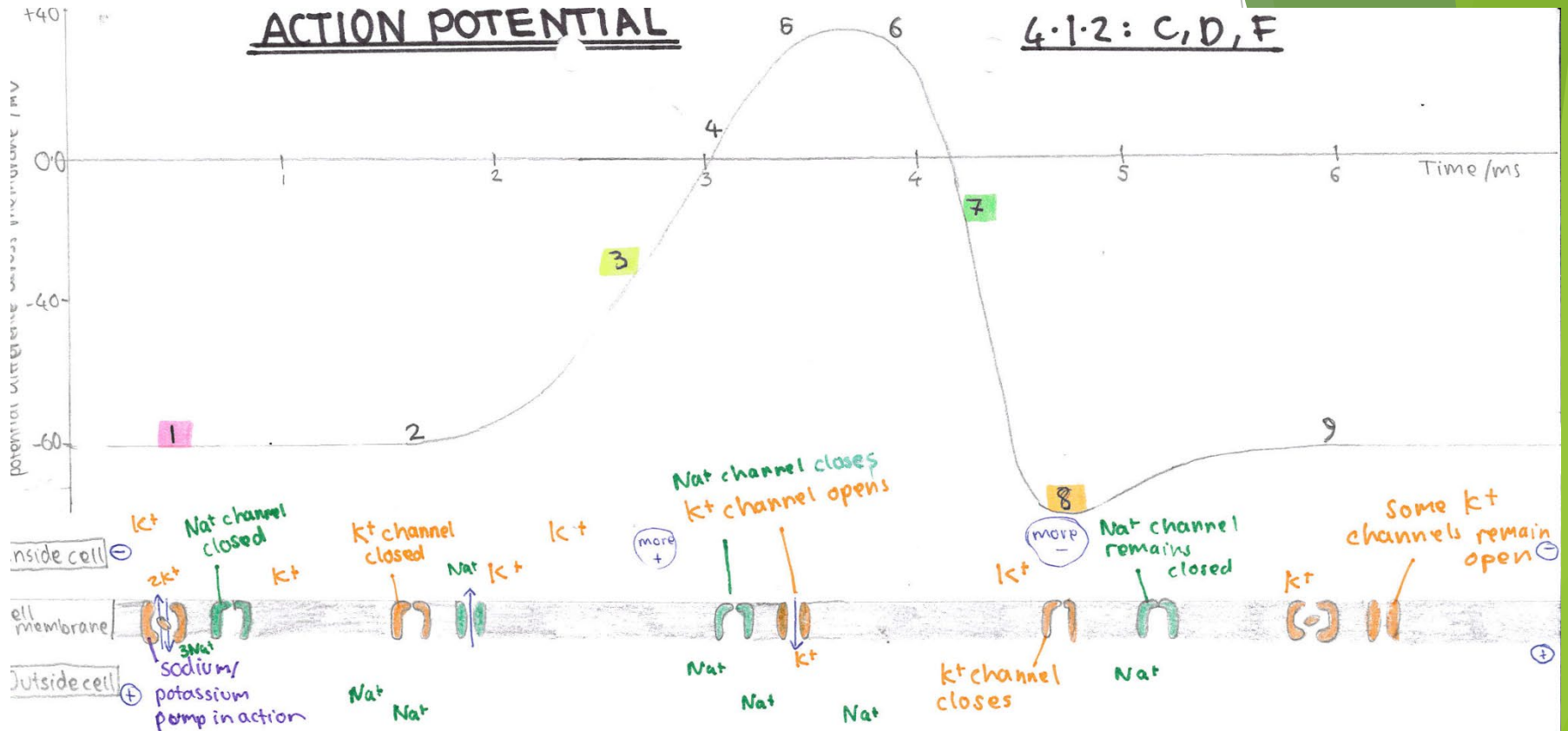
COMPONENT	RESPONSE IF BODY TEMP. IS TOO HIGH	RESPONSE IF BODY TEMP. IS TOO LOW
cells	Rate of metabolism reduced; less heat generated	Rate of metabolism increased; more heat generated
the skin	Hairs lie flat, providing little insulation.	Hairs raised to trap air close to the skin
hand nose	Panting increases evaporation of water from mouth and lungs.	No panting so less water evaporation
ls	Increased sweat production using heat from body to evaporate	Decreased sweat production
ling to	Vasodilation allows more heat to radiate from the blood.	Vasoconstriction reducing blood flow to surface of skin
e	No spontaneous contractions	Spontaneous contractions, generate extra thermal energy

	TOO COLD
move and limbs to surface area	Move about to generate heat or in extreme cold roll into a ball to reduce s.a.
ate body to	Orientate body to increase surface area exposed to the sun
ease surface area exposed to the sun	Move into shade or hide in a burrow
move into shade or hide in a burrow	Move into sunlight to bask

Ectotherm temperature regulation		
Adaptation	What it does	Example
Expose body to sun	More heat absorbed	Snakes Lizards
Orientate body away from sun	Lower s.a. exposed + less heat absorbed	Lizards
Hide in burrow	Reduced heat absorption	Lizards
Alter body shape (e.g. expand/contract ribcage)	Exposes more or less s.a. to the sun	Horned lizards
Increase breathing movements	Evaporates more water	Lizards

ACTION POTENTIAL

4.1.2: C, D, F



1	2	3	4	5	6	7	8	9
Membrane polarised, with inside -60mV compared to outside, 3 sodium ions out for every 2 potassium ions in. by sodium-potassium pumps using ATP.	Sodium ion channels open and some sodium ions diffuse into the cell.	Membrane depolarises - less negative with respect to outside and reaches threshold value of -50mV. Sodium influx.	Voltage-gated sodium ion channels open and many sodium ions diffuse in. As more sodium ions enter, the cell becomes more \oplus charged inside.	Potential difference across plasma membrane reaches +40mV. Inside \oplus .	Sodium ion channels close, potassium ion channels open.	Potassium ions diffuse out of the cell, bringing pot. diff. back to more \ominus inside. Repolarisation.	The potential difference overshoots slightly, making the cell hyperpolarised.	Original pot. diff. restored, cell returns to resting rate. Refractory period - possible to stimulate membrane to another act. pot. Allows cell to recover.

ULTRAFILTRATION

afferent arteriole \rightarrow glomerulus \rightarrow efferent arteriole
(wider) (high pressure) (thinner)
 \rightarrow pushes fluid \rightarrow glomerulus

Capillary endothelium:

- narrow gaps between cells: blood plasma & dissolved substances can pass through

Basement membrane:

- fine mesh (collagen fibres & glycoproteins)
- filter to prevent passage of large molecules
- most proteins & all blood cells remain in glomerulus capillaries.

Podocytes:

- epithelial cells with major processes (finger-like projections)

What is filtered out?

- water
- glucose
- inorganic ions
- amino acids
- urea

What is left in the capillary?

- blood cells
- proteins: give blood low ψ , ensuring that some fluid stays in the blood

SELECTIVE REABSORPTION

85% of filtrate absorbed in proximal convoluted tubule which has a specialised cell lining:

- microvilli: increase S.A.
- co-transporter proteins: allow facilitated diffusion of glucose or amino acids in association with sodium ions
- sodium-potassium pumps (sodium out, potassium in)
- mitochondria - many, producing lots of ATP

Process:

- 1) Sodium-potassium pumps remove sodium from cells lining tubule \rightarrow reduced conc. of sodium ions in cell cytoplasm
- 2) Sodium ions \rightarrow cell with glucose/amino acids (facilitated diffusion)
- 3) Glucose & amino acid conc. rises & they diffuse \rightarrow tissue fluid on opposite side of cell
- 4) Tissue fluid \rightarrow blood \rightarrow carried away
- 5) Reabsorption of salts, glucose & amino acids \rightarrow reduced ψ in cells and increased ψ in tubule fluid \therefore water enters cell & is reabsorbed by osmosis \rightarrow blood.
- 6) Larger mols (e.g. small proteins) reabsorbed by endocytosis.

LOOP OF HENLE

DESCENDING LIMB (descends \rightarrow medulla)

- deeper the fluid descends, the lower the ψ due to:
 - loss of water by osmosis to tissue fluid
 - diffusion of sodium and chloride ions from tissue fluid \rightarrow tubule

ASCENDING LIMB (ascends \rightarrow cortex)

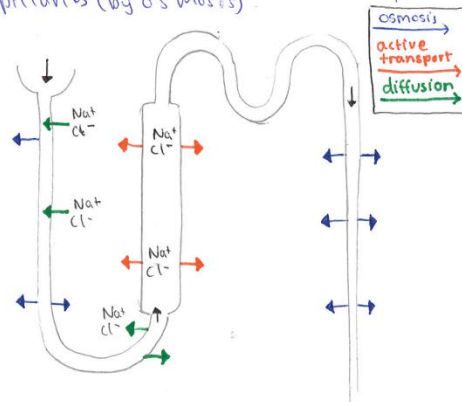
- as fluid ascends, ψ becomes higher as:
 - at base of tubule, sodium & chloride ions diffuse out \rightarrow tissue fluid, higher up, they are actively transported out.
 - wall of ascending limb: impermeable to water (water cannot leave tubule)
 - fluid loses salts, but not water, as ascending \rightarrow medulla (high salt conc, so low ψ)

- water reabsorbed from urine in distal tubes & collecting ducts. Amount depends on needs of body, \therefore kidney: organ of osmoregulation

- hairpin countercurrent multiplier system = arrangement of loop of henle to increase efficiency of salt transfer

COLLECTING DUCT

- distal convoluted tubule (active transport adjusts salt concentrations) \rightarrow collecting duct
- (as tubule fluid moves down collecting duct, water moves \rightarrow surrounding tissue \rightarrow blood capillaries (by osmosis))



OSMOREGULATION

= control of water & salt levels in body

WATER INPUTS:

- food
- drink
- metabolism

WATER OUTPUTS:

- urine
- sweat
- water vapour in exhaled air
- faeces

ALTERING COLLECTING DUCT PERMEABILITY

- walls respond to level of antidiuretic hormone (ADH) in blood
- cells in wall have ADH receptors, which, when bound to ADH, result in chain of enzyme-controlled reactions in the cell \rightarrow vesicle containing water-permeable channels \rightarrow cell surface membrane \rightarrow walls more permeable to water
- \rightarrow more water reabsorbed by osmosis
- Less ADH: cell surface membrane folds in & creates new vesicles, removing aquaporins from membrane \rightarrow less water reabsorbed.

ADJUSTING ADH BLOOD CONCENTRATION

- Blood ψ monitored in hypothalamus by osmoreceptors
- \rightarrow respond to effects of osmosis:

- low ψ : osmoreceptor cells lose water by osmosis \rightarrow shrink \rightarrow stimulate neurosecretory cells in hypothalamus

Specialised neurones that produce & release ADH

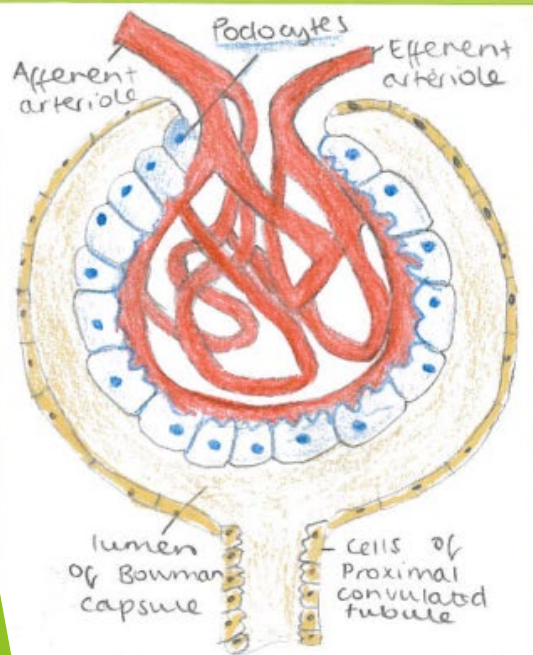
ADH is manufactured in cell body of cells in hypothalamus \rightarrow axon \rightarrow terminal bulb (in posterior pituitary gland)

after release stimulated by action potential initiated by neurosecretory cells, ADH \rightarrow blood capillaries through posterior pituitary gland \rightarrow body \rightarrow acts on cells of collecting ducts \rightarrow blood ψ rises \rightarrow less ADH released

slowly broken down: half-life = 20 mins



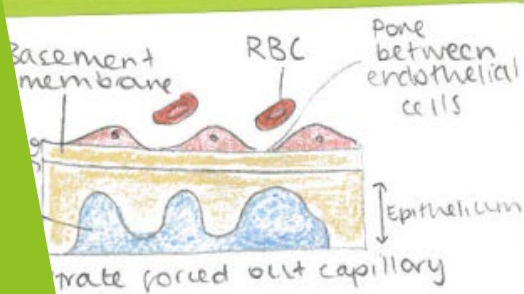
contact with the Bowman's capsule) has a larger width than efferent arteriole \Rightarrow Largely increased pressure inside glomerular capillaries than efferent, forcing fluid through the blood capillaries into renal capsule = ULTRAFILTRATION.



\rightarrow FILTRATION PRESSURE

The blood flowing through the afferent arteriole is at high pressure + due to the small width of efferent, a build-up of pressure forces molecules within the blood through the glomerular capillaries into the Bowman's capsule.

The materials pass through pores in the endothelium. The endothelial cells line the basement membrane of the Bowman's capsule (made of collagen + other glycoproteins + fibres). Podocytes, epithelial cells of the capsule have projections called major processes ensuring there are gaps between cells. Fluid can flow between these cells into the renal capsule.



Each layer (endothelium, basement membrane + epithelium) are adapted to allow passage of these substances:



- ▶ This is all about *thinking*, understanding the work and learning to express it in ways that are not simply recalling a text book word for word.
- ▶ Every research paper on this topic agrees that it is the only way to both retain knowledge and understand it
- ▶ The exam papers ask the students to apply knowledge they have to unfamiliar situations. The best way to be able to do this is to approach their work from so many angles that they can learn to draw connections between their work and what the examiner is actually asking.

Past papers and practise Questions

- ▶ This is key to improving exam technique.
 - ▶ Choose a topic using the syllabus
 - ▶ Learn the work using active revision
 - ▶ Try some exam questions on that topic. Use the books first.
 - ▶ Use the mark scheme to go through the work and correct any mistakes
 - ▶ Use the mark scheme to go back over your notes and make additions, in a Green Pen, on what the examiner expects of you.
 - ▶ Re-learn the areas you did poorly on
 - ▶ Test yourself without the books.
 - ▶ Mark/annotate/revise.
 - ▶ Reflect - do you need to go back over the topic? What isn't working? What can you do about it?



(iv) State the process by which molecules and ions, **other than water**, will move from the blood into the dialysate.

Diffusion

(v) Suggest why the direction of flow of the blood and the dialysate is as shown in Fig. 4.3.

Maintains diffusion gradient

[Total: 14]

(c) Complete the following passage, using the **most suitable** term in each case:

ADH is a hormone that is produced by specialised nerve cells known as

Osmoreceptors

cells. These cells detect changes in the water

potential of the blood flowing through the hypothalamus. If the water

potential of the blood is too low then ADH is released.

ADH is not secreted immediately into the blood but passes along the

axon

of the specialised nerve cells to the

Posterior

pituitary

gland, from where it is released into the blood.

ADH acts on the cells of the collecting duct

The ADH molecule attaches to receptors on the membrane of these

cells and causes protein channels known as aquaporins to insert

themselves into the membrane. Water passes through these channels by

osmosis

and a smaller volume of more concentrated urine is produced.

[8]

(d) ADH does not stay in the blood indefinitely.

Suggest where ADH is removed from the blood and describe what then happens to the ADH molecule.

Broken down by liver/hepatocytes

deamination - amine group

removed

amino acid cycle

Broken down into urea and

excreted

[3]

2 Urine is a liquid that is composed of a number of different substances.

(a) Urea is one compound that is excreted from the mammalian body in urine.

(i) Name the organ that **produces** urea.

Liver

[1]

(ii) It has been observed that the urea content of urine is relatively high when a person eats an excessive amount of protein in their diet.

Suggest why a high intake of protein in the diet will be likely to result in a high concentration of urea in urine.

High intake of proteins
↓
lots of amine acids
↓
Amine removed
↓
converted to ammonia
↓
ammonia enters
↓
amino acid cycle

The liver removes the potentially toxic amine. The amino group forms toxic ammonia + converts to urea which is less toxic. Urea is transported to kidney for excretion. The remaining amino acids are used for processes such as respiration. High protein diet → excess amino acids → more deamination → More urea.

[3]

(b) Suggest what condition is indicated by the presence of glucose in a person's urine.

diabetes

[1]

(c) (i) Pregnancy may be detected by testing a woman's urine.

State the substance that is being tested for in urine when a pregnancy test is carried out.

hCG hormone

[1]

increased blood conc of urea
↓
high conc urea =
↓
increases H₂O
↓
absorption from urine

Module 4: Kidneys

1. Describe the following processes which occur during urine formation in mammals.

(a) Ultrafiltration

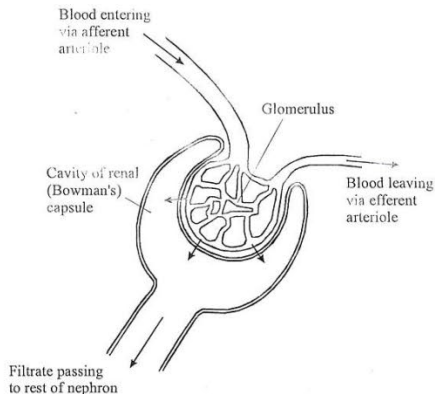
→ blood under high pressure in glomerulus
Molecular filtration in the glomerulus of kidneys. Some molecules are filtered out of the glomerulus blood into the renal capsule. (2) ①

(b) Selective reabsorption of glucose

→ in proximal convoluted tubule
Absorption of certain molecules back into the blood from the fluid in the nephron tubule. → carriers in membrane: active transport (2) ①

(Total 4 marks)

2. The diagram shows part of a nephron from a mammalian kidney.



(a) Name the region of the kidney in which the renal capsules are found.

Cortex

(b) Describe and explain the process of ultrafiltration.

- high pressure of blood in glomerulus
- because afferent vessel wider than efferent
- small molecules forced out

(1)

- large molecules remain in
- basement membrane is a filter
- large pores in capillary walls

(c) Name one substance, filtered from the blood, that would be completely reabsorbed as the filtrate passes through the nephron.

glucose

(4)

(1)
(Total 6 marks)

3. Give an account of the structure of the kidney.

(Allow two lined pages).

(Total 8 marks)

4. The table below shows the typical concentration of four solutes (urea, glucose, sodium ions and potassium ions) in the filtrate produced in the Bowman's capsule and in the proximal convoluted tubule of a nephron (kidney tubule).

Solute	Concentration of solute / g dm ⁻³	
	Bowman's capsule	Proximal convoluted tubule
Urea	0.30	0.55
Glucose	0.10	0.00
Sodium ions	0.33	0.33
Potassium ions	0.17	0.02

(a) Explain how the filtrate is produced in the Bowman's capsule.

The blood in the glomerulus is under high pressure as the afferent vessel is wider than the efferent. This forces small molecules out of the capillaries, into the Bowman's capsule; the basement membrane acting as a filter (3)

(b) In the proximal convoluted tubule, large volumes of water are reabsorbed from the filtrate into the blood. Suggest why the concentration of sodium ions remains unchanged but the concentration of urea increases in the proximal convoluted tubule.

- sodium ions pumped out of tubule
- at same rate as water
- urea not reabsorbed

∴ increased ratio of urea to water



Other ideas

- ▶ Flashcards - to keep on the student at all times. Take them out on the bus, in the corridor, on the sofa at home. Make the unfamiliar terminology part of everyday lexicon.
- ▶ Kerboodle
- ▶ Make games!
- ▶ Teachers - use them. Show them your work and ask them to give some tips on what else to add.
 - ▶ Make a list of questions you want to go through next time you see them, or even email it to them
 - ▶ Be proactive - come with a list of syllabus statements you want the teacher to cover.



Organisation is also Key

- The syllabus looks like this...

3.2.1.2 Structure of prokaryotic cells and of viruses

Content	Opportunities for skills development
<p>Prokaryotic cells are much smaller than eukaryotic cells. They also differ from eukaryotic cells in having:</p> <ul style="list-style-type: none"> • cytoplasm that lacks membrane-bound organelles • smaller ribosomes • no nucleus; instead they have a single circular DNA molecule that is free in the cytoplasm and is not associated with proteins • a cell wall that contains murein, a glycoprotein. <p>In addition, many prokaryotic cells have:</p> <ul style="list-style-type: none"> • one or more plasmids • a capsule surrounding the cell • one or more flagella. <p>Details of these structural differences are not required.</p> <p>Viruses are acellular and non-living. The structure of virus particles to include genetic material, capsid and attachment protein.</p>	

3.2.1.3 Methods of studying cells

Content	Opportunities for skills development
<p>The principles and limitations of optical microscopes, transmission electron microscopes and scanning electron microscopes.</p> <p>Measuring the size of an object viewed with an optical microscope. The difference between magnification and resolution.</p> <p>Use of the formula: $\text{magnification} = \frac{\text{size of image}}{\text{size of real object}}$</p> <p>Principles of cell fractionation and ultracentrifugation as used to separate cell components.</p> <p>Students should be able to appreciate that there was a considerable period of time during which the scientific community distinguished between artefacts and cell organelles.</p>	<p>AT d, e and f</p> <p>Students could use iodine in potassium iodide solution to identify starch grains in plant cells.</p> <p>MS 1.8</p>



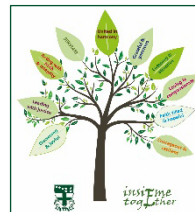
Organisation

- ▶ Use the syllabus to split your work into bite sized chunks.
- ▶ Decide what sections you will revise.
- ▶ Actively learn the work
- ▶ Test.
- ▶ Correct
- ▶ Re-learn based upon mistakes
- ▶ Re-test
- ▶ Correct
- ▶ Evaluate.
- ▶ Determine the next activity for the next day.
- ▶ The next day, test on previous work first.



Linear Learning

1. **Knowledge** — Flashcards/notes and revision materials throughout the course. Knowledge Mats.
2. **Learn** — Revise throughout the course and not just at the end. Flashcards should be used at all times.
3. **Apply** — Do as many questions as possible and use the mark schemes to adapt your revision materials.



Teaching & Learning - how you can help

- ▶ Check that your daughter is acting on feedback
- ▶ Talk about her learning and discuss her work with her
- ▶ Use the Curriculum guide for information on courses. These can be found online.
- ▶ Check the homework is being completed and to a good standard
- ▶ Planner- always check and sign
- ▶ Time and space to study



Assessment for Learning

Assessment for Learning

We gather evidence of understanding on a daily basis while the students are in the process of learning. To do this we must know our students : where they are, what they understand, and how they learn. This information guides our decisions about what we will do next in order to fill in gaps, clarify misconceptions and provide the kind of feedback that will help students move forward.



Part of everyday teaching practices.



Used to inform and adapt teaching practices.

Assessment for Learning is...

A quick way to gather information about student learning.



Done in conjunction with students to engage them in their own learning.



- ▶ Know target grades in all subjects
- ▶ Understand what is required to improve
- ▶ Ask questions
- ▶ Respond and act on teachers' feedback
- ▶ Assess own work and work of others



Y10 Curriculum Guide

The Curriculum Guide is packed with information to help you support your daughters' education:

- ▶ Overviews of key school policies.
- ▶ Exam-board information for GCSE subjects.
- ▶ Contact information.

A digital copy will be sent out at the end of tonight's presentation.



Mrs Alexander - Deputy Headteacher



Smart Devices

- ▶ Academic research is clear that mobile phone and smart watch use in school are a distraction, negatively impact behaviour, progress and attainment, compromise the integrity of assessments, enable access to apps we cannot monitor in school and are banned by JCQ, the exams regulatory authority.
- ▶ To help keep everyone safe while commuting and at school, we recommend that expensive mobile phones and smart watches are not brought into school. However, this is at parents' discretion.
- ▶ Regardless of the make/model of your daughter's phone and/or watch, and in accordance with research, Government guidance and our [Digital Learning & Safety Policy](#), if you choose to send your daughter to school with a mobile phone or smart watch, it must be switched off, placed in their padlocked locker at the start of the day and remain there until the end of the day. Any phones or watches seen or heard in school will be confiscated.
- ▶ If your child needs access to a medical app, please speak to us about this.



There is growing evidence of the negative impact of smartphones on sleep, safety, learning, mental health and wellbeing. The Online Safety Bill was introduced in 2023, Tech companies are being investigated, and as you're most likely aware there is widespread campaigning to delay the smartphone.

We recommend the following advice from adolescent and online safety experts re. smart devices:

- Setting up **parental controls** and Enabling **Ask to Buy**.
- Setting up **screen downtime, app limits, and content & privacy restrictions**.
- **Removing phones from bedrooms**, during homework/study time and overnight. Overnight is VITAL.
- **Password sharing, regularly checking your child's phones** and having those important conversations.
- Having a **family phone agreement**.
- **Delaying, limiting or even better avoiding social media**.



Online Safety Parent Resources

- ▶ To safeguard the safety, health and wellbeing of our children, it is essential they are media literate, and have boundaries.
- ▶ Holding regular discussions about online safety is key - children must be clear on the challenges and dangers, and how echo chambers and algorithms work. We hold regular discussions at school as part of our PHSEC curriculum and ask parents and carers to do the same.

Recommended resources:

- ▶ •[Common Sense Media](#), [Dr Lisa Damour's](#) books and podcasts (Episodes 54 and 152 of her 'Ask Lisa' podcast focus specifically on phones and social media), [Dr Jean Twenge](#), [Jessica Chalmers \(Social Jess\)](#), [Jonathan Haidt](#), [National Online Safety](#), [NSPCC](#), [Titania Jordan](#), [Thinkuknow.co.uk](#), and [UK Safer Internet Centre](#).
- ▶ •The UK campaigns [@smartphonefreechildhood](#), [@delaysmartphones](#) and [Safescreens.org](#)
- ▶ •We also recommend watching the documentaries Childhood 2.0 and The Social Network, and listening to the Ezra Klein Show podcast, the Teen mental health crisis, episodes 1 & 2 (May 2023).
- ▶ •[The Social Media and Youth Mental Health Advisory Report](#) from the US Surgeon General Dr Vivek Murthy and Jonathan Haidt's book '[The Anxious Generation](#)' are recommended reading.
- ▶ •[PhoneSmart](#), is a free digital course giving your child the knowledge needed to be safe and kind online, and the skills to be phone ready.
- ▶ Thank you for your support with managing the online safety and wellbeing of our children.



Use of social media (&the Internet) for educational support)

- ▶ There is a vast number of tutors and exam gurus sharing their expertise and insight via social media (in particular; Instagram, TikTok and YouTube).
- ▶ There are lots of great teachers and subject experts out there but there are just as many poor ones. There are also many students claiming to know how to get a grade 9!
- ▶ In the same way parents do their due diligence before employing a tutor, students should do their research before deciding to follow and listen to an 'expert' via social media. It is essential students make informed decisions on who they are taking advice from, to ensure they are getting relevant and accurate advice/insight relevant to their courses.
- ▶ Please support your daughters to make informed and relevant decisions regarding the resources they are using.
- ▶ Please seek guidance from UHS teachers in the first instance who will guide you in the direction of tried and tested resources.



Vaping, Drugs and Alcohol

- ▶ Pressure, temptation and tendency to engage in risky behaviours, such as trying alcohol and/or recreational drugs.
 - ▶ Particularly prevalent around age 15+
- ▶ PSHEC in school.
- ▶ Parental workshops.
- ▶ Having the conversation.
- ▶ Collaborative and Community Approach



Enrichment

- ▶ It is our expectation for all students to be involved in extracurricular activities.
- ▶ Tutors will monitor their extra-curricular to help students who may find it challenging to engage.
- ▶ A link to the enrichment programme can be found [here](#).
- ▶ [Enrichment - Ursuline High School](#)
- ▶ Please go through with your daughter to identify enrichment she would like to engage in - there are lots to choose from.



Safeguarding Team



Ms Rachael Gilmore
Assistant Headteacher
Inclusion
Designated Safeguarding Lead
Mental Health Lead



Ms Michelle Alexander
Deputy Headteacher
Standards



Ms Kerry Connor
Assistant Headteacher
Ethos and Behaviour
Safeguarding Officer



Ms Sarah McCourt
Deputy Designated Safeguarding
and Wellbeing Lead



Ms Danielle Boateng
Care Co-ordinator
Safeguarding Officer

*inspire
me
together*

Contact Details

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**Thank you for your time
this evening!**

