



YEAR 9 KNOWLEDGE ORGANISERS



Eukaryotes and prokaryotes

- 1. **Eukaryotic cells** have membranebound organelles and have genetic material contained in the nucleus
- 2. An **organelle** is a part of a cell that carries out a specific function
- 3. Plant and animal cells are examples of **eukaryotic cells**
- 4. Eukaryotic cells are typically between **10-100 µm** in size
- 5. All eukaryotic cells have a nucleus, mitochondria, ribosomes, cytoplasm and a cell membrane. Plant cells also have a cell wall, vacuole and chloroplasts
- 6. **Mitochondria** are the site of aerobic respiration which releases energy for cellular processes
- 7. **Ribosomes** are the site of protein synthesis
- 8. **Prokaryotic cells** do not contain membrane-bound organelles
- Prokaryotic cells are approximately 10 orders of magnitude smaller than eukaryotic cells
- 10. Prokaryotic cells contain genetic material in small rings called **plasmids**, or in larger loops
- 11. Prokaryotic ribosomes are smaller than eukaryotic ribosomes



Growing microorganisms

- 12. Petri dishes are used to produce **cultures** of bacteria and other micro-organisms
- 13. Cultured bacteria are grown on a **nutrient medium** in controlled conditions
- 14. **Aseptic techniques** must be used to prepare cultures to prevent contamination of the culture and the growth of harmful bacteria
- 15. Petri dishes, inoculating loops and culture media must be sterilised before use. A flame can be used to sterilise equipment
- 16. An **inoculating loop** is a piece of equipment used to transfer bacteria to the petri dish
- 17. The lid of a Petri dish should be partially secured with tape to ensure bacteria cannot escape but conditions remain aerobic
- 18. The Petri dish must be stored upside down to prevent condensation affecting bacterial growth
- 19. In school laboratories, cultures should generally be incubated at 25
 °C to prevent the growth of harmful bacteria
- 20. A cotton wool swab can be used to transfer a sample to a Petri dish to investigate bacterial growth
- 21. Bacteria on a Petri dish divide rapidly whilst the nutrient supply is rich. Every time the bacteria reproduce, the number doubles. The total number of bacteria can be calculated using the following formula:

Final number of bacteria = Initial number of bacteria x 2 ^{number of divisions}

Microscopy

- 22. **Microscopy** is the field of using microscopes to view samples that cannot be seen with the naked eye
- 23. **Light microscopes** allow us to see the largest organelles, including the nucleus, cell membrane, cell wall



and cytoplasm. A **stain** is often used to make the organelles clearer

- 24. The parts of a light microscope include the eyepiece lens, objective lenses, stage, coarse focusing wheel, fine focusing wheel, light/mirror
- 25. A sample used with a light microscope must be very thin to allow light to pass through
- 26. The total magnification of a microscope can be calculated using the following equation:
 Total magnification = Objective lens x eyepiece lens
- 27. **Electron microscopes** have a greater magnification and resolution than light microscopes. They are much more expensive than light microscopes
- 28. **Magnification** is the number of times larger an image is than the object
- 29. **Resolution** is the ability to distinguish between two points
- 30. Electron microscopes allow are to see more organelles and study cells in greater detail
- 31. **Magnification** can be calculated using the following equation:

Magnification = Size of image Actual size of object

- 32. A **scale bar** can be used to calculate the magnification of an irregular object
- 33. Magnification does not have a unit because it is a ratio

Transport of substances

34. **Diffusion** is the spreading out of particles, of a gas or liquid, resulting in net movement from an area of high concentration to low concentration



- 35. In gas exchange, oxygen and carbon dioxide diffuse between the alveoli and the blood
- 36. The **rate of diffusion** is increased by:
- an increase in temperature
- an increase in the difference in concentrations (concentration gradient)
- a greater surface area
- 37. Unicellular organisms have a relatively high surface area to volume ratio allowing for sufficient transport of all required substances
- 38. Large, **multicellular organisms** have adaptations to increases the surface area to volume ratio to allow for efficient exchange of substances
- 39. Osmosis is the diffusion of water from a dilute solution to a concentrated solution through a partially permeable membrane



- 40. A **partially permeable membrane** is a membrane that lets particular substances pass through it, either into or out of the cell
- 41. A **hypertonic solution** is one in which the external solution has a higher concentration of solute than the cell. Water always moves out of a cell that is placed in a hypertonic solution, causing the cell to shrivel or become **flaccid**
- 42. Tissue placed in hypertonic solutions decreases in mass
- 43. A **hypotonic solution** is one in which the external solution has a lower concentration of solute than the cell. Water always moves into a cell that is placed in a hypotonic solution, causing the cell to swell or become **turgid**
- 44. Tissue placed in hypotonic solutions increases in mass



45. An **isotonic solution** is one in which the external solution has the same concentration of solute as the cell. Water will not move in or out of cells placed in an isotonic solution so their size will stay constant



- 46. **Guard cells** open and close due to the movement of water by osmosis
- 47. The mass of plant tissue can be measured before and after being placed in a solution of known concentration to calculate the **percentage change** in mass due to osmosis
- 48. Active transport moves substances from a more dilute solution to a more concentrated solution, requiring energy from respiration
- 49. Active transport works **against the concentration gradient**
- 50. Active transport is used in root hair cells to absorb mineral ions from the soil that are essential for plant growth



Cell division and differentiation

- 51. Both eukaryotic and prokaryotic cells undergo **cell division**
- 52. Cells increase in number by dividing into two
- 53. The **eukaryotic cell cycle** contains a **growth phase** where the cell grows to double sub-cellular structures

(such ribosomes and cell membrane) and DNA, then the cell splits into two during **mitosis**

54. The length of time in a certain stage of the cell cycle can be calculated using the following formula:

(observed number of cells initial stage) X total length of time (total number of cells observed) of cell cycle

- 55. The mass of **DNA** in a cell doubles during the growth phase of the cell cycle
- 56. During **mitosis** DNA (arranged into chromosomes) is pulled to separate ends of the cell ready for division
- 57. The final part of the cell cycle is when the cell membrane splits to produce two identical **daughter cells**
- 58. Mitosis is used by eukaryotic organisms for growth and repair and by those that reproduce asexually
- 59. Mitosis does not occur in prokaryotic cells because they do not possess a nucleus
- 60. **Checkpoints** in the cell cycle control the rate of cell division
- 61. **Cancer** is caused by uncontrolled cell division
- 62. A **tumour** is a mass of cells caused by **uncontrolled cell division**
- 63. Benign tumours are a mass of cells contained in one area
- 64. **Malignant tumours** are formed of cancer cells that invade other tissues and spread around the body where they form secondary tumours





- 65. A **risk factor** is a gene or lifestyle choice that can increase the likelihood of a person developing a disease
- 66. **Lifestyle risk factors** for cancer include poor diet, lack of exercise, smoking, UV exposure
- 67. Genetic risk factors for cancer include gene mutations
- 68. Specialised cells arise from **stem cells**
- 69. Stem cells are cells that are capable of **differentiating** into other types of cell
- 70. When a cell differentiates, it acquires specific structures needed for that cell type
- 71. Most animal cells differentiate at an early stage of development
- 72. **Embryonic stem cells** can differentiate into all human cell types
- 73. Adult bone marrow contains stem cells that can differentiate into different types of blood cell
- 74. Embryonic stem cells can be used to study and treat diseases. There are **religious and ethical objections** to using embryonic stem cells in scientific research
- 75. Plants contain **meristem tissue** at the tips of shoots and roots that retains the ability to differentiate throughout a plant's life

HISTORY OF POP KNOWLEDGE ORGANISER

BIG QUESTION

How can we extend performance skills and understanding of notation, chords, and the development of popular music through the keyboard?



MAJOR CHORDS FIRST INVERSION ROOT POSITION SECOND INVERSION The root is the lowest note: The middle note (third) of the The highest note (fifth) of the triad becomes the lowest note: triad becomes the lowest note: EXTENDED CHORDS MINOR CHORDS If we use more than three notes this is called an EXTENDED chord. The next note (and most common extended chord) is the seventh. There are three kinds of Seventh Chord: Cm Cmaj.7 C-E-G-B C-E-G-B C-E-G-B 4+3+4 semitones 4+3+3 semitones 3+4+3 semitones



NAME:

KLASSE:_____

Wörter

Stimmtl 3 KAPITEL 1 Gall

(Seiten 24-25)

Der Körper	The body
der Kopf	head
die Schulter	shoulder
der Arm	arm
die Hand	hand
der Rücken	back
der Bauch	stomach
der Po	bottom
das Bein	leg
das Knie	knee
der Fuß	foot

Das	Gesicht
das	Auge

das Ohr
die Nase
der Mund
das Kinn

Charaktereigenschaften

X ist mein Vorbild, weil	
er/sie … ist.	
begabt	
berühmt	:
dynamisch	(
erfolgreich	
lustig	i

Character traits

The face

eye

ear

nose

mouth

chin

X is my role model/idol because he/she is ... talented famous energetic successful funny

originell reich mein(e) Lieblingsschauspieler(in) mein(e) Lieblingssänger(in) mein(e) Lieblingssportler(in)

Was macht er/sie?

Er/Sie läuft schnell. Er/Sie fährt schnell Rad. Er/Sie singt viele Lieder. Er/Sie liest die Nachrichten. Er/Sie ist oft im Fernsehen. Er/Sie spielt gut Gitarre.

Was hast du in deinem Leben gemacht?

Ich habe ... viele Reisen gemacht mit Kindern gearbeitet viele Länder gesehen viele Preise gewonnen viel Geld verdient viel trainiert Tennis / Gitarre gespielt in (Amerika) gewohnt Biologie studiert Ich bin nach Afrika gefahren. Ich habe ... original rich my favourite actor/actress my favourite singer my favourite athlete

What does he/she do? He/She runs fast. He/She cycles fast. He/She sings many songs. He/She reads the news. He/She is often on TV. He/She plays guitar well.

What have you done in your life?

I have ...

travelled a lot worked with children seen a lot of countries won a lot of prizes earned a lot of money trained a lot played tennis / guitar lived in (America) studied biology I have travelled to Africa. I have ... Stimmti 3 KAPITEL 1 GRUD

Stimmti 3 KAPITEL 1

Er/Sie hat	He/she has
gegessen	eaten
geschrieben	written
gehabt	had
gesungen	sung
getanzt	danced
lch bin nach Amerika gesegelt.	I have sailed to America.
Ich bin in viele Tanzstudios	I have been to lots of dance studios.
gegangen.	

Zukunftspläne

Ich werde ... viele Reisen machen viele Länder sehen Arzt/Ärztin werden im Ausland leben Theaterwissenschaft studieren viel Geld verdienen für eine Hilfsorganisation arbeiten

Future plans

I will ... travel a lot see lots of countries become a doctor live abroad study drama

> earn a lot of money work for an aid organisation

Was ist passiert?

Ich habe mir das Bein verletzt.
Ich habe mir den Arm gebrochen.
Ich habe einen Unfall gehabt.
Ich bin vom Rad gefallen.
Ich bin ins Krankenhaus gekommen.
im Schwimmbad

What happened?

I injured my leg. I broke my arm. I had an accident. I fell off my bike. I went to hospital.

in the swimming pool

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Oft benutzte Wörter	High-frequency words
Ich liebe	l love
Ich mag	l like
lch mag nicht	l don't like
sehr	very
ziemlich	quite, fairly
so	SO
ZU	too
nicht	not
nie	never
später	later
dann	then
in zehn Jahren	in ten years
in der Zukunft	in the future

Stimmtl 3 KAPITEL 1

Musik

Wörter

Musikarten	Types of music
Ich höre gern	I like listening to
Ich höre nicht gern	I don't like listening to
R&B-Musik	R&B music
Jazzmusik	jazz
Rap-Musik	rap
Нір-Нор	hip-hop
Popmusik	pop music
Rockmusik	rock music
Klassische Musik	classical music
Wie ist die Musik?	What is the music like?
Sie ist …	It is
toll	great
lustig	fun

original

tuneful

dynamic

creative

full of energy

energiegeladen

originell

melodisch

dynamisch

kreativ

Musik

nervig	annoying
modisch	fashionable
altmodisch	outdated/old-fashioned
kitschig	corny
monoton	monotonous
Sie macht gute Laune.	It puts you in a good mood.
Sie macht schlechte Laune.	It puts you in a bad mood.

Wer ist dein(e) Lieblings?	Who is your favourite?
Mein Lieblingssänger ist	My favourite (male) singer is
Meine Lieblingssängerin ist	My favourite (female) singer is
Meine Lieblingsband ist	My favourite band is
Mein Lieblingslied ist	My favourite song is

Instrumente	Instruments
das Keyboard	keyboard
das Klavier	piano
das Saxofon	saxophone
das Schlagzeug	drums
die Gitarre	guitar
die Geige	violin
die Trompete	trumpet

Stimmtl 3 KAPITEL 2



die Klarinette Ich spiele kein Instrument. clarinet

I sing.

l don't play an instrument.

Ich singe.

I've been playing ...

for three years

for six months

since July

How long have you been playing?

Seit wann spielst du?

Ich spiele ...

seit drei Jahren

seit sechs Monaten

seit Juli

Wie oft spielst du?

How often do you play?

Ich spiele ...

jeden Tag

einmal pro Woche

zweimal pro Woche

am Wochenende

ab und zu

every day

I play ...

once a week

twice a week

at the weekend

now and then

Wo spielst du?	Where do you play?
Ich spiele	l play
zu Hause	at home

Page 3 of 6

Stimmtl 8 KAPITEL 2

Musik

in der Schule	at school
in einer Band	in a band
in meinem Zimmer	in my room

Die Band-Kandidaten

The band hopefuls

moment.

I write my own lyrics.

I can't read music.

I find them ...

full of energy

talented

original

cool

X is my idol because ...

I don't have a favourite singer at the

I listen to music and play along.

Ich habe keine Lieblingsmusik. I don't have a favourite type of music.

Ich habe momentan keinen Lieblingssänger.

Ich schreibe meine eigenen Liedtexte.

Ich kann keine Noten lesen.

Ich höre Musik und spiele mit.

X ist mein Vorbild, weil ...

Wie findest du die Band? What do you think of the band?

Ich finde sie ...

cool

energiegeladen

begabt

originell

monoton

(zu) laut

monotonous too loud Stimmtil 3 KAPITEL 2

Musik Stimmti 3 Kapitel 2 dynamisch dynamic modern modern alternativ alternative modisch stylish aggresive aggressiv Ihr Look ist ... Their look is ... Ihre Musik ist ... Their music is ... Der Gitarrist ist begabter als ... The guitarist is more talented than ... Die Sängerin ist melodischer als... The singer is more tuneful than ...

Was hast du auf dem Festival What did you do at the festival? gemacht?

Ich habe	1
Wir haben	We
viel getanzt	danced a lot
Souvenirs gekauft	bought souvenirs
coole Bands gesehen	saw cool Bands
in einem Zelt geschlafen	slept in a tent
neue Freunde gefunden	made new friends
viel gesungen	sang a lot
exotische Spezialitäten gegessen	ate exotic specialities



Ich bin auf das Festival gegangen.

I went to the festival.

Oft benutzte Wörter

High-frequency words

noch mal

viel

viele

gestern

Welcher/Welche/Welches?

Was für?

Warum?

again a lot many yesterday Which? What type of/sort of? Why?



Stimmt! 3 KAPITEL 2

Wörter

Wie bist du? abenteuerlustig kühn mutig ängstlich feige verrückt vorsichtig

Würdest du ... ?

Ich würde ... nie vielleicht bestimmt mit Haifischen schwimmen Extrembügeln machen zum Mond fliegen Kakerlaken essen den Mount Everest besteigen Zorbing machen Brennnesseln essen mit Krokodilen schwimmen zum Mars fliegen

Was für einen Job hast du?

Ich arbeite ... als Bademeister(in) als Trainer(in) als Babysitter(in)

What are you like? adventurous daring

brave

fearful cowardly

mad / crazy

cautious

Would you ...?

I would ... never maybe definitely swim with sharks do extreme ironing fly to the moon eat cockroaches climb Mount Everest do zorbing eat stinging nettles swim with crocodiles fly to Mars

What type of job have you got?

I work ... as a lifeguard as a coach as a babysitter

ter.s

GION KAPITEL 3

(Seiten 70-71)

als Hundeausführer(in) als Zeitungsausträger(in) in einem Café in einem Restaurant in einem Supermarkt

Hast du einen Job?

Seit wann arbeitest du? Ich arbeite ... seit einer Woche seit sechs Monaten Ich finde den Job ... toll interessant okay nicht schlecht langweilig furchtbar Ich mag den Job, weil ... er interessant ist er Spaß macht ich viel Geld verdiene Ich mag den Job micht, weil ... er langweilig ist er keinen Spaß macht ich nicht viel Geld verdiene Man muss ... abwaschen sauber machen Salate vorbereiten

as a dog walker as a newspaper boy (girl) in a café in a restaurant in a supermarket Stimmtl 3 KAPITEL 3

Do you have a job?

How long have you been working? I've been working ... for a week for six months I find the job ... great interesting OK not bad boring awful I like the job because ... it's interesting it's fun I earn a lot of money I like the job because ... it's boring it's no fun I don't earn a lot of money You have to ... wash up clean prepare salads

Man kann ... mit den Hunden laufen mit einem Ball spielen fit bleiben Man darf (nicht) essen spielen Ich habe keinen Job, aber ich will als ... arbeiten.

Was möchtest du machen?

Ich möchte ... zuerst später dann bei (BMW) arbeiten heiraten Kinder haben um die Welt reisen Fußballprofi werden Schauspieler(in) werden Sänger(in) werden auf die Uni gehen (Mathe) studieren im Ausland leben

Im Skiort

das Café das Restaurant das Hotel die Skischule You can ... run with the dogs play with a ball keep fit You are (not) allowed to ... eat play I don't have a job, but I want to work as ...

Stimmtil 3 KAPITEL 3

What would you like to do?

I would like ...
first of all
later
later
then
to work for (BMW)
to get married
to have children
to travel round the world
to become a footballer
to become an actor (actress)
to become a singer
to go to uni
to study (maths)
to live abroad

In the ski resort

café restaurant hotel ski school

das Souvenirgeschäft die Kinderkrippe der Berg die Piste der Wellnessbereich Ich arbeite im Moment ... im Souvenirgeschäft als Küchenhilfe Ich möchte später ... Sozialarbeiter(in) werden ein Restaurant eröffnen Ich würde nie ... in der Stadt leben auf dem Berg leben Oft benutzte Wörter nie vielleicht bestimmt zuerst später dann seit in auf extrem in zwei Jahren in fünf Jahren

souvenir shop crèche mountain ski run spa At the moment I work ... in the souvenir shop as a kitchen help Later I would like to ... become a social worker open a restaurant I would never ... live in the city live on the mountain High-frequency words never maybe definitely first of all later then since/for in/into on/onto extremely in two years in five years

Stimmti 3 KAPITEL 3

Die Kindheit

Wörter

Meine Kindheit

Mit fünf Jahren ...

hatte ich ein tolles Rad. hatte ich einen roten VW. hatte ich eine schöne Puppe. hatte ich einen niedlichen Teddybären. hatte ich einen kleinen Computer hatte ich einen bunten Fotoapparat. hatte ich einen blauen Gokart. hatte ich eine gelbe Tasche. hatte ich eine tolle Eisenbahn. hatte ich ein weißes Jo-Jo. hatte ich ein altes Schaukelpferd.

hatte ich viele Kuscheltiere. Das war meine Lieblingssache. Er/Sie/Es war super.

My childhood

When I was five years old .../At the age of five ... I had a great bike. I had a red VW. I had a beautiful doll. I had a cute teddy.

I had a small computer. I had a colourful camera.

I had a blue go-kart I had a yellow bag. I had a great train set. I had a white yo-yo. I had an old rocking horse. I had lots of soft toys. That was my favourite thing. It was super.

Jetzt spiele ich lieber am Computer. Now I prefer to play on the computer.

Erinnerungen	Memories
Mit welchem Alter	At what age could you?
konntest du?	
Ich konnte mit sechs Monaten	At six months old I could
Ich konnte mit einem Jahr	At one year old I could
Ich konnte mit zwei Jahren	At two years old I could
bis 20 zählen	count to 20
schwimmen	swim

Stimmtil 3 KAPITELA

(Seiten 92-93)

Die Kindheit

meinen Namen schreiben Rad fahren laufen lesen sprechen lächeln einen Handstand machen die Uhr lesen

Was durftest du machen?

Ich durfte …
Ich durfte nicht …
alleine in die Schule gehen.
alleine in die Stadt gehen.
alleine ins Kino gehen.
Ich musste um 18 Uhr zu
Hause sein.
Ich musste um 19 Uhr ins
Bett gehen.
Ich musste zu Hause helfen.

Sekundarschule und Grundschule

In der Sekundarschule ... In der Grundschule ... haben wir viele Hausaufgaben. hatten wir nicht viele Hausaufgaben. müssen wir das Klassenzimmer wechseln. write my name ride a bike walk read talk smile do a handstand tell the time

What were you allowed to do?

I was allowed to ... I was not allowed to ... go to school on my own. go into town on my own. go to the cinema on my own. I had to be home by six o'clock.

I had to go to bed at seven o'clock.

I had to help at home.

Secondary and primary school

At secondary school ... At primary school ... we have lots of homework. we didn't have much homework.

we have to change classrooms.

2

Stimmti 3 KAPITEL 4

Rechte and Pflichten

Wörter

Mit welchem Alter darf man das?

Man darf mit (16) Jahren ... einen Teilzeitjob haben Blut spenden ein Piercing haben ein Nasenpiercing haben bis 24 Uhr in Discos oder Clubs bleiben die Schule verlassen ein Mofa fahren heiraten einen Lottoschein kaufen Paintball spielen mit Einwilligung der Eltern Es gibt keine Altersgrenze.

Ich denke ...
Ich denke, das ist richtig.
Ich denke, das ist falsch.
Das finde ich toll.
Das ist ganz in Ordnung.
Ich denke, mit (zwölf) Jahren ist besser.
Das ist zu alt.
Das ist zu jung.
Das ist nicht gut.

Was ist dir wichtig?

At what age are you allowed to do that? At the age of (16) you are allowed to ... have a part-time job give blood have a piercing have a nose piercing be out at a disco or club until midnight

midnight leave school ride a moped get married buy a lottery ticket go paintballing with parental consent There is no age limit.

I think ... I think that is right. I think that is wrong. I find that great. That is acceptable/OK. I think (at) the age of (12) is better.

That's too old. That's too young. That's not good.

What is important to you?

GEUR KAPITEL 5

(Seiten 114-115)

Rechte and Pflichten

meine Familie mein Handy mein Computer mein Hund Geld Mode Musik Freizeit Sport Ausschlafen ... ist mir das Wichtigste. ... ist mir wichtig. ... ist mir nicht wichtig. gute Noten meine Haustiere Meine Freunde ... sind mir das Wichtigste. ... sind mir wichtig.

Warum ist dir das wichtig?

(Musik) ist mir wichtig, weil ...
sie mich glücklich macht
es Spaß macht
ich in einer Band spiele
ich oft traniere
er mein bester Freund ist
Ich suche oft Infos und mache
Hausaufgaben am Computer.
Ich möchte Arzt werden.
Ich möchte fit bleiben.

my family my mobile phone my computer my dog money fashion music free time sport having a lie-in ... is the most important thing to me. ... is important to me. ... is not important to me. good grades my pets My friends ... are the most important thing to me. ... are important to me.

Stimmtil 3 KAPITEL 5

Why is it important to you?

(Music) is important to me, because ...
it makes me happy
it's fun
I play in a band
I train often.
he's my best friend
I often search for information and do my
homework on the computer.
I would like to become a doctor.
I would like to keep fit.

Rechte and Pflichten

Stimmti 3 KAPITEL 5

... bringt mehr Geld

... raises more money

Oft benutzte Wörter

jetzt früher mit ohne jung alt wichtig nicht wichtig High-frequency words now before/previously with without young old important not important



Atomic Structure



- 1. Atoms are very small and have a radius of about $1 \times 10^{-10} \mbox{ m}$
- 2. Atoms consist of a positively charged **nucleus**, containing **protons** and **neutrons**, surrounded by negatively charged electrons
- 3. The radius of a nucleus is less than 1/10000 of the radius of an atom
- 4. The mass of an atom is concentrated in the nucleus
- 5. The electrons are arranged in **energy levels**, which are different distances from the nucleus
- 6. The **atomic number** is the number of protons in an atom of the element
- 7. All atoms of a particular element have the same number of protons in their nuclei
- 8. Atoms of different elements have different numbers of protons
- 9. The **mass number** of an element is the total number of protons and neutrons
- 10. The relative charges of the subatomic particles are: protons (+), electrons (-) and neutrons (0)

Electronic Configuration

- 11. Electron arrangement may change with the absorption or emission of electromagnetic radiation
- 12. Electrons in an atom occupy the lowest available energy level
- 13. The electronic structure of an atom can be represented by numbers or a diagram
- 14. Atoms have no overall electrical charge because the **number of electrons is equal to the number of protons** in the nucleus
- 15. Elements that react to form positive **ions** are metals
- 16. Elements that do not form positive ions are non-metals
- 17. Atoms form **positive ions** if they **lose** one or more outer **electrons**
- Atoms form negative ions if they gain one or more outer electrons



ls

- 19. Isotopes are atoms of the same element that have different numbers of neutrons
- 20. An element's relative atomic mass is an average value that takes account of the abundance of different isotopes

Atomic Theory

- 21. Before electrons were discovered, atoms were thought to be tiny spheres that could not be divided any further
- 22. The **plum pudding model** was developed after the discovery of electrons, with the atom thought to be a **ball of positive charge** with negative **electrons embedded** throughout it
- 23. The nuclear model was developed after the alpha particle scattering experiment concluded that the **mass** of an atom was concentrated in the centre (**nucleus**) and that the nucleus was charged
- 24. Niels Bohr used theoretical calculations and experimental observations to adapt the nuclear model by suggesting that **electrons orbit** the nucleus at specific distances
- 25. Protons were discovered after later experiments concluded that positive charges of any nucleus could be subdivided into a whole number of smaller particles, each with the same amount of charge
- 26. Experiments by Chadwick provided evidence for the existence of neutrons within the nucleus, about 20 years after the nucleus became an accepted Scientific theory







The Periodic Table

- 27. Elements in the periodic table are arranged in order of **increasing atomic number** and elements with **similar properties** are in columns, known as **groups**
- 28. It is called the Periodic Table because similar properties occur at regular intervals
- 29. Elements in the same group have similar properties because they have the **same number of electrons in their outer shell**
- 30. Early periodic tables had elements missing and some elements were placed in the wrong groups because the strict order of atomic mass was followed
- 31. **Mendeleev** left gaps for elements he thought had not yet been discovered and changed the order of some elements
- 32. Elements with properties predicted by Mendeleev were discovered and filled the gaps
- 33. Knowledge of **isotopes** helped to explain why the strict order of atomic weights is not always correct



The Noble Gases

- 34. Elements in Group 0 are called the Noble Gases
- 35. They are **unreactive** and do not easily form molecules because they have a **stable arrangement of electrons**
- 36. They have 8 electrons in their outer shell, except Helium which has 2
- 37. Boiling point increases with increasing atomic mass (as you go down the group)

The Alkali Metals

- 38. Elements in Group 1 are called Alkali metals
- 39. They have 1 electron in their outer shell

- 40. They are soft and shiny and have relatively low melting and boiling points
- 41. **Reactivity increases** as you go down the group
- 42. Alkali metals react with oxygen to form metal oxides
- 43. Alkali metals react with water to form metal hydroxides and hydrogen gas
- 44. Chemical reactions can be represented by word equations or equations using symbols and formulae

e.g. Sodium Hydroxide + Hydrochloric Acid → Sodium Chloride + Water

NaOH + HCI \rightarrow NaCI + H₂O

The Halogens

- 45. Elements in **Group 7** are known as the **Halogens**
- 46. They have similar reactions because they all have **7 electrons in their outer shell**
- 7. The Halogens are non-metals and consist of molecules made up of pairs of atoms
- 8. Melting and boiling points increase with increasing relative molecular mass (as you go down the group)
- Reactivity decreases as you do down the group
- A more reactive halogen can displace a less reactive halogen from an aqueous solution of its salt

The Transition Metals

- 51. Metals including Cr, Mn, Fe, Co, Ni and Cu are transition metals with similar properties, which are different from the properties of Group 1
- 52. Many transition elements form ions with different charges, form coloured compounds and can be useful as catalysts



' Jana Evra' 1-10: Knowladga Organisar		Locations	Ke	y words		
Julie Lyre 1-10. Knowledge Organiser		Gateshead Hall		orphan – a child whose parents have died.		
Ch	apter breakdown On a bitter day, Jane is curled up with a book when her cousin, John Reed, discovers her and hits her.	Home of Mrs Reed, John, Georgiana, and Eliza Reed. Jane grows up here. Jane is locked in the red-room.		dependent – someone who relies on another person to support them financially. Jane is a dependent because she relies on Mrs Reed to feed, clothe and house her.		
2	Jane is locked in the red-room. She sits in turmoil until she hears and sees something odd. She begs to be let out. She faints.	Lowood School Jane is sent to Lowood by Mrs Reed. Mr Brocklehurst is the headteacher. Conditions are harsh and strict. The girls receive brutal punishments and are fed poorly. A typhus outbreak kills many of the girls.		oppress (vb.) – to treat a group of people in an unfair way, often by limiting their freedom. juxtaposition – a literary technique where a writer places very different things or people close to each other. This helps to show how the things are similar or different.		
3	Jane wakes up in the nursery. Bessie and Mr Lloyd are there. Jane is miserable. Mr Lloyd talks to Jane about going to school.					
4	Jane is visited by Mr Brocklehurst, the headteacher at Lowood School. After his visit, Jane and Mrs Reed argue, Jane says she will never call her 'gunt' again	Characters Jane Eyre The main character. A young, intelligent, and passionate orphan. "You think I have no feelings, and that I can do without one bit of love or kindness; but I cannot live so"		esis – the main idea that you want to discuss oughout an essay.		
5	Jane travels to Lowood School. She meets Miss Temple, the kind teacher, and Helen Burns, another pupil			ashamed. If something makes you feel stupid or ashamed, you could describe it as humiliating .		
6	Helen is thrashed for having dirty hands. Later, she talks with Jane and explains that it is better to forgive and be patient than to get angry and seek revenge.	Mrs Reed – Jane's aunt She neglects and abuses Jane and is glad to send her away to Lowood School. "Guard against her worst fault, a tendency to deceit"	do co for	does the opposite at another time. comeuppance – when a villain receives some form of punishment for what they did.		
7	Mr Brocklehurst visits Lowood School. He calls Jane to the front of the classroom and calls her a liar in front of all the teachers and pupils. Helen smiles at Jane, bringing Jane hope.	Mr Brocklehurst – The governor of Lowood school A cruel and hypocritical Christian. He believes in driving evil from children through harsh discipline. "Punish her body	1	A child is a blank slate and can be trained to develop into a rational being. A child is born completely innocent and pure .		
8	Afterwards, Jane and Helen visit Miss Temple. Miss Temple says she believes that Jane is not a liar. Jane listens to Miss Temple and Helen's fascinating conversations. Miss Temple hears from Mr Lloyd that Jane is not a liar, and tells the school.	to save her soul" Helen Burns – Jane's friend A kind and forgiving Christian. She inspires Jane to be more patient and accepting. She dies of tuberculosis at 14. "Love your enemies; bless them that curse you; do good to them that hate you and despitefully use you."		The child is born evil and must therefore be controlled and punished in order to submit to the rules of God and society.		
9	Jane enjoys the area around Lowood in the spring. Typhus breaks out at Lowood School. Lots of girls get sick. Many die. Helen Burns dies of tuberculosis.			graphical information 'Jane Eyre' written in 1847 by Charlotte Brontë. Parts of 'Jane Eyre' were influenced by		
10	Eight years pass. Jane has become a teacher at Lowood School. Mr Brocklehurst had his power removed when his treatment at the school was	Miss Temple The kind and understanding teacher at Lowood. Offers care and affection to Jane and Helen. "You shall be publicly cleared from every imputation: to me, Jane, you are clear now."		Brontë's experiences at school and as a young woman. 'Jane Eyre' was unusual when it was published		
di: fa	discovered. Jane applies to be a governess for a family at Milcote.			because it is written in the first-person from a female perspective.		

1.2.1 Primary Storage

Why is it needed?

Primary storage provides fast access to the CPU. That allows active programs to deliver optimal performance to the end-user.

Virtual Memory

Description:

When the RAM becomes full, the overflow of data normally stored in the RAM will be stored in Virtual Memory which is located on the hard drive. Once space becomes available, data will move from VM and back to RAM. However this is a slow process.



RAM and ROM

RAM (Random Access Memory) and ROM (Read-Only Memory) both store data but there are a number of key differences between the two.

	IPXE		
RAM	TITITI ROM		
Volatile memory	Non-volatile memory		
Read and write data	Reads data		
Stores programs/data currently in use.	Stores instructions required to boot up the computer (BIOS)		
Expandable	Soldered onto the motherboard		
Contents change frequently (Temporary)	Contents hardly ever change. (Permanent)		

Difference between volatile and non-volatile memory.

Volatile memory means when the computer is switched off, data is lost. Whereas, non-volatile memory has the ability to retain data even when the computer is switched off.

BIOS:

BIOS stands for Basic Input/Output System. It designed to boot up the computer using a POST (Power on selftest) and determine what hardware is connected to the system.

Key terms:

Volatile Non-volatile



ile Storage Read Write

THE INTERWAR YEARS Knowledge organiser

Timeline.

WHAT HAPPENED AFTER WWI?

IqIq: The Treaty of Versailles is signed, ending World War One and imposing heavy reparations on Germany,

1920: The American Policy of Isolation begins, distancing them from the politics of the rest of the world.

1920: Prohibition starts in America, banning the sale of alcohol across all states

1923: The Great Kanto Earthquake hits Japan, in particular Tokyo, ending their roaring 20s early.

1924: Lenin dies, leaving Joseph Stalin as ruler of Russia. This then begins his policy of industrialisation in 5-10 years.

1925: The Locarno Pacts are signed in efforts to stabilise relationships with Germany.

1929: The Wall Street Crash plunges America into severe economic depression, dragging the rest of the world with it.

1931: The Spanish Monarchy is overthrown and the republic is born, a temporary government is set up in the mean time. .

1933: Hitler becomes chancellor of Germany. By March, he passes the enabling act giving himself additional powers.

1936: The Spanish Civil War begins, Francisco Franco leads troops against the Republican government.

1938: Britain and France sign the Munich Pact with Germany to give permission for them to invade the Sudetenland.

1939: Britain and France declare war on Germany in response to Hitler's continued aggression in Eastern Europe.

WHAT WERE THE ROARING 20S LIKE?

FASHION

In America, the 'flappers' became a real craze. Women had recently got more rights and so were becoming more 'free' following the first world war. They wore short skirts, danced on their own and smoked. The clothes were aconic and very against societal norms.



GERMANY Germany suffered thorough Hyperinflation, meaning their money was worth nothing. One egg cost £80 million Reichsmarks

THE TREATY OF VERSAILLES

This was eventually agreed in 1919, but Germany were not allowed to take

part in the discussions, instead they had to accept everything that was put to

them in the treaty. Territory was taken from Germany, depriving it of

valuable industrial income. Germany had to accept responsibility for starting

the war, leading to feelings of humiliation and anger. This was the War Guilt

Clause, which left many Germans feeling humiliated. Germany had to

pay reparations of £6.6 billion, which would ensure that the economy would

not recover. Germany's armed forces were severely reduced. For example,

there was no air force, a maximum 100,000 soldiers and a reduced navy.

WHAT WAS LIFE LIKE IN EUROPE AFTER THE WAR?

FRANCE

France had to try and rebuild, it had lost most of its formlands in the East, and many of its men had been killed in the war.

BRITAIN Rationing was in place for much of the 20s, with food shortages continuing. It was also trying to ensure India remained in its Empire.

WHAT WAS PROHIBITION?

Alongside the events of the Roaring 20s, the American government decided that they needed to try and prevent violent and unruly behaviour brought on by alcohol consumption. Many people actually wanted this to be brought in!



SPEAKEASIES AND BOOTLEGGING

Although many wanted prohibition, this actually just increased the desire for underground bars, called speakeasies. Bootleggers also began secretly transporting the alcohol across the Mexican or Canadian border so that people could still access the alcohol they wanted.





This was the era of Jazz music. The music was African American and caused uproar with many white Americans. It also took an a more unfiltered and raw approach to once taboo topics like sex and race. This music was played frequently in the hidden 'speakeasies.



THE WALL STREET CRASH

In 1929, the American Stock Market collapsed, leading to a global financial disaster. America were plunged into economic disaster which then in turn dragged the rest of the world with it. All big economies suffered severely because of this.

ECONOMIES

As each country began to feel threatened, they looked for friends to back them up in war -known as allies. Europe split into two alliances: Britain, France and Russia formed the Triple Entente: Germany, Austria-Hungary and Italy formed the Triple Alliance.



LL ST. PANI

engulfs the financial market

AMERICA'S ISOLATION

illions lost; wave of selling

WOMEN Younger women

entering a revolutionary period. They gained many new rights, dressing how they wanted, voting in elections, and involving themselves in politics. The male dominated word was coming to an end. The Flappers were the 'new woman

were



ROARING 20S IN BRITAIN

Post WW1 in Britain was also a time for significant change and development.

Power to the People

In 1918, all British men and some women got the power to vote in general elections. In 1924, Britain's first labour aovernment were elected. The Labour Party represented working-class people.

Bright young things For young, wealthy people, the 1920s was a good time. There was new Jazz music, clubs, more alcohol, new fashion. Men wore makeup and colourful clothes; women could go out without a chaperone.

NOT EVERYONE EXPERIENCED THE ROARING 20S.

Peace time was hard for people, thousands had been sent home from the British armed forces who had to come to terms with life changing injuries, or the mental toll the war had taken. Many people from the Empire had been brought to Britain, chose to stay. However, in the summer of 1919 violent race riots broke out against this.

Most people in Britain did not have much time or money to spare during this period. By 1926, the British economy was struggling again. There was more unemployment and people found life vert hard.



The Spanish Civil The USSR War started in supported the 1936, and saw Republican forces, right wing however the nationalists (like **British and French** the Nazis) led by did not want to General Franco, get involved in fight against the case it escalated left wing to a full scale republicans. world war. LEAGUE OF DATIONS

The League of Nations was set up after the war to

ensure that there would be lasting global peace. This

was stipulated in the Treaty of Versailles, and all

Once the organisation had been set up America

decided not to join even though it had been their

Initially, the plan had been to allow all countries

to have a say in things going on globally, however

without America it never really worked the way it

should do. Germany also felt like they were being

idea. Germany were also prevented from joining.

countries agreed to join.

unnecessarily punished.

an opportunity to test out his armed forces, joining the side of Franco to ensure another **Fascist dictator** was put into power in Europe.

WHAT HAPPENED DURING THE SPANISH CIVIL WAR?

In the end, Franco won the war and Hitler however, used this war as ruled until he died at the age of 75. This was a turning point in European politics in the 1930s, as now there were three powers, all of whom were dictators.

proved that it was copoble of ighting in a large scale conflict and winning, its army and weaponry were up to tandard, and the threat of large scale war

SOVIET THREAT TO THE LEAGUE OF NATIONS

Russia had been taken over by a communist government in 1918, and their radical ideas meant that the Western governments did not trust them. Communism was a relatively new concept and they believed it would threaten the way of life for many other Capitalist countries. The USSR were eventually allowed to join in 1935, but tensions were high because of it.

ITALIAN THREAT TO THE LEAGUE OF NATIONS

Italy had a fascist government, with Benito Mussolini in charge, Italy already owned land in Northern Africa, and so it was an obvious choice to invade Abyssinia. It was rich in natural resources, and provided an opportunity to start an Empire. In 1934, Mussolini ordered the attack to begin, and the League of Nations found it very difficult to get involved with Italy's movements. Italy succeeded in 1936.

MANCHURIA

MANCHUKUO

Muiden.



				5- C
KEY TERM	DEFINITION	KEY TERM	DEFINITION	Japan invades
Fascist	An anti-democratic system of government developed by Mussolini in Italy and Hitler in Germany	Bootlegging	These were the people who snuck alcohol in during the Prohibition	Japanese territory as of 1928
Flapper	A middle or upper-class woman who cur her hair shorter and wore shorter dresses; flappers smoked and drank openly	Reparations	Money paid by a country that has lost a war, for the damage and injuries it has caused.	Beiji
Isolationism	Choosing to not be involved in world politics or trade	Socialist	Someone who believes in public ownership rather than privately owned business	Si CHINA
Speakeasies	These were underground clubs or bars in America, they had a secret password to enter.	Communist	A political theory created by Karl Marx, all property is publicly owned and each person works and is paid on their abilities.	BURMA Hanon

JAPANESE THREAT TO THE LEAGUE OF NATIONS

Japan had been suffering as a result of the 1929 Wall Street Crash: their only natural resource was silk and so they needed additional resources to boost their economy. In 1931, Japan orchestrated the Mukden incident, where they rigged a Japanese railway with dynamite and blew it up. They then blamed the Chinese foe this so they had a reason to invade Manchuria. The invasion lasted over 5 months and led to them occupying Manchuria against the wishes of China. The League of Nations opposed this but they did not do anything to intervene against Japanese aggression - the closest country who could intervene was Russia, but they were still not a part of the League.

WORLD WAR TWO

Knowledge okganisek

Timeline

EVENTS OF THE FIRST WORLD WAR

 1939: Hitler invades Poland on the 1" September. Britain and France declare war on Germany two days later.
 10th May 1940: Germany begin to use Blitzkrieg to take land

in Europe.

26th May 1940: Operation Dynamo, or the Dunkirk Rescue is launched to evacuate British and French troops from France.

July 1940: The Battle of Britain begins, with the Germans eventually loosing due to the new radar technology. .

June 1941: Hitler attacks Russia in Operation Barbarossa. They are now fighting a war on two fronts.

December 1941: Japan launches its attack on Pearl Harbour in America. This brings the USA into the war officially.

November 1942: Germany reaches Stalingrad in Russia. However the Russian people fight back and win.

June 1944: the D-Day landings begin in France, with British, French and American troops launching an attack to liberate them.

April 1945: Russia reaches Berlin. Hitler commits suicide rather than be captured by the Russian soldiers.

May 1945: Germany unconditionally surrenders. They put no contingencies in place as they have nothing left to fight with.

August 1945: The Atom bomb is dropped on Hiroshima and Nagasaki, effectively ending the war between USA and Japan.

October 1945: The United Nations is set up, promoting peace across the world to prevent any further war. WHAT WAS THE EVACUATION PROCESS UTKE?

1939 the Government took over Britain's transport systems for 4 days to evacuate the cities and send them to villages in the countryside.

WHAT WAS THE GERMAN TACTIC OF BLITZKRIEG?

mode the decision to

evacuate 1 million women

and children from the cities

to protect them from the

wor in the sities.



Germany invaded Poland on the 1st September 1939 using a new method of warfare called Blitzkrieg, meaning Lightening War. Blitzkrieg involved fast-moving columns of tanks supported by infantry soldiers and dive-bomber attacks. By the end of September, the Polish armed forces had been defeated. Britain and France had promised to protect Poland, but were too far away to stop the invasion. As a result, there was very little fighting for about six months after Poland was defeated. Instead, Britain crossed the channel to help its allies, France and Belgium, set up defensive positions along their borders

On a leaflet sent out to people around the country it said: "The scheme is entirely a voluntary one, but clearly the children will be much safer and happier away from the big cities where the

dangers will be greatest."

THE HOME FRONT

- Late in 1940, the German began to bomb key cities in the UK, including London. For one 11 week period, London was bombed every single night except one. 30,000 civilians had been killed and 87,000 seriously injured.
- By May 1940, the government urged all men ages between 17 and 65 who weren't in the army to join what became known as the Home Guard. They worked part time to prepare their area for attack.
- The Germans tried to cut off supplies of food and other goods by sinking the ships that brought the supplies to Britain.
- The government issued millions of gas masks to civilians as a precaution against gas bombs.
- People put up thick black out curtains to prevent any glimmer of light from escaping.



The Treaty was seen as severe. It damaged Germany economically, made her weak and hurt German pride. Hitler would use this bitterness and onger as fuel for his speeches and to justify for his foreign policy.

The Wall Street Crash marked the start of a Global Depression. This helped dictators come to power and other countries were too weak to stand against them. Fuelled by his anger at Versailles and helped to power by depression. Hitler's foreign policy would eventually push Europe to war. He started with rebuilding the small, weak German army.

CAUSES OF WORLD WAR TWO



Austria and Germany had been banned from joining together. Hitler (Austrian) believed the two countries should be united. He ignored Versailles and arranged a vote. The Austrians voted to join Germany.

As Hitler grew stranger he wanted more. Europe feared war over the Sudetenland. After talks in Munich, Germany, the Sudetenland was given to Hitler. In return, he promised this was his last territorial demand.

The NSNAP was a surprising agreement between Hitter and Stalin. It opened the way for Hitler to invade Poland without fear of Soviet attack. The Nazi invasion of Poland was the trigger for WW2



beaches of France to liberate them from German rule. By late 1944 all of Northern France had been liberated, and by the following Spring the allies had defeated the Germans.



of the war, and so America resorted to using its nuclear weapons. On the 6th August 1945 the first bomb was dropped on Hiroshima, and the second on the 9th in Nagasaki with 240,000 civilians being killed.

Britain, USSR and the USA realised they needed to do something to prevent war happening again. They set up the United Nations, where all countries could join with the purpose being to promote peace. By 2011, 193 countries were members.

KEY TERM	DEFINITION	KEY TERM	DEFINITION	
Home Front	The civilian population and activities of a nation whose armed forces are engaged in War abroad.	Turning Point	This is a moment where the war changes direction. Germany were winning, then a number of events turned that away.	
Appeasement	The act of making sure peace is reached peacefully.	Cold War	A war with no actual fighting, but with increasing tensions in other ways.	
Blitzkrieg	The German tactic of 'lightening war', hitting targets at random and doing so quickly.	Nuclear Bomb	A bomb that splits the atom, it detonates above ground and causes more damage than the average bomb.	
Evacuation	Removing the children and pregnant wamen from cities at risk from the Blitz.	United Nations	An organisation set up after the war to prevent any more war in Europe.	

KEY TEPMS

TENSIONS IN EUROPE SINCE THE END OF THE WAR =

uring the Second World War, the USA and the USSR fought together to efeat Nazi Germany. As the war came to a close however, the differences etween America and Russia became clear. At the end of the war, Germany as split into four different sections, Eastern Germany was given to Russia, nd Western Germany was split between France, Britain and America, By 948, Western Germany was merged into a single zone, putting the East nd the West against each other. This angered the USSR because they eren't told about this, and so tensions increased. This was made worse hen NATO, the North Atlantic Treaty Organisation was set up which cluded 12 of the biggest Western powers and again excluded Russia. To etaliate against this, Russia set up its own military alliance including the astern European Communist States. Tensions continued to rise between merica and the USSR and it concluded in a 'Cold War', which means it is a ar with no actual fighting.

WEST AFRICA

British colonies in West Africa (Gambia, Sierra Leone, Ghana and Nigeria) served as military bases. Thousands of people from British East Africa (Kenya, Uganda) joined the armed forces, as well as 60,000 from northern and Southern Rhodesia. Many served as support troops in military hospitals, airfields and naval bases.

Two and a half million Indians fought in the War - the largest volunteer army in History. They fought in Europe, as well as in Sudan against the Italians, in Libya against the Germans and in Burma against the Japanese. Around 90,000 people lost their lives while serving with the Indian forces. Indian soldiers, sailors and aircrew received over 4000 medals -Including 31 Victoria Crosses, Britain's highest bravery medal.

Knowledge organiser – Religious attitudes towards prejudice and discrimination

Positive discrimination

Discrimination can be positive as well as negative. Positive discrimination is used to promote opportunities for minority groups in society so that those groups are better represented in public services. For example, the Police Service may advertise specifically for black, Asian and gay officers so that more people are represented from other communities and also trying to promote more equality.

Types of prejudice:

Sexuality

Racism

The Law in the UK

The law is there to protect people from discrimination and make it illegal in the UK. The following Acts have all been introduced:

- 1976 Race Relations Act
- The Commission for Racial Equality

Disability Discrimination Act

- Equal Pay Act
 Sex Discrimination
- Disability
- Gender
- Equality Act 2010



Religious Freedom

In the UK the right to religious freedom is protected. Freedom of religious expression is the right of any person to follow the religion of their choice.

No religion teaches intolerance. The freedom to believe and worship in public or private, to change religion or not or not follow any religion is a fundamental human right.

The status and roles of women in religion:

In some <u>Christian denominations</u> women are not allowed to have important positions. Catholics do not support women becoming priests. They argue that men and women are equal but have different roles. Jesus chose male disciples and the tradition of males leaders has continued in their church. However in Britain in 1993 the Church of England allowed women to become priests. This was very controversial and led to some Christians moving churches.

Although men and women are equal in <u>Islam</u> they are not the same. Muslims believe that they have been designed by God for different purposes and have different roles. women are allowed to work but their first priority must be looking after their husbands and their family. Men are expected to work and provide for their family.





"We created you all from a single man and a single woman and made you into nations and tribes so that you should get to know one another." Quran 49:13 "Beware of greed for its ready poverty." Hadith "Do not charge your brother interest, whether on money or food or anything else that may earn interest." "Cure poverty with charity and giving generously." Hadith "Be good to your parents, to relatives, to orphans, to the needy, to neighbours near and far." Quran 4:36 "All people are as equal as the teeth of a comb." Hadith

"Allah does not look upon your outward appearance, he looks upon your hearts and deeds'. Hadith "Anyone, male or female who does good works and is a believer, will enter paradise." Quran 4:124

Human Rights	The basic rights and freedoms to which all human beings should be entitled
Equality	The state of being equal, especially in status, rights and opportunities
Prejudice	Unfairly judging someone before you know them. Holding biased opinions (thoughts) about an individual or group.
Discrimination	Treating (the action) someone unfairly based on prejudiced thoughts about them

Physical Skills	Drama Techniques	Drama	Lighting	Sound
Movement	Freeze Frame		Flood	Diegetic
Gait	Thought Tracking	Knowledge	Projection	Non-Diegetic
Posture	Slow Motion		Constlight	Cound Effects
Body Language	Synchronised Movement	Organiser	spotlight	Sound Enects
Gestures	Physical Theatre—Chair Duet	Key Terminology	Gel (Colour)	Direction
	Physical Theatre—Mime	Stage Directions	Gobo	
Facial Expression		Blocking		
Orientation	Physical Theatre—Body As Props	4th Wall	Strobe	
	Choral Speaking	Facing the Audience	Intensity	
Vocal Skills	Set	Stimulus		
Pace	Flat	Devising	e _{ni} ,	1.0A
Pitch		Rehearsal	Red ^{ition} Stage Di	irections
Volume	Rostra	Steps of Rehearsal		
Projection	Flyspace	Read the Script		
	Truck	Set the Stage		
Pause		Blocking	Upstage right Upstag	e center Upstage left
Emphasis		Add Physical Skills	Right center Cer	nter Left center
Accent		Add Vocal Skills	Downstage right Downstage center Downst	
Accent		Perform for feedback		
Tone		Improve	Audi	ence



Starting the game: A game starts with a tip-off. The referee throws the ball into the air in the centre circle and two opposing players jump up and try to tap it away to gain possession.

Method of scoring: Points are scored when the ball goes through the basketball hoop. If a successful shot is taken inside of the 3 point line, then 2 points will be awarded. If a successful shot is taken from outside of the 3 point line, then 3 points will be awarded. 1 point can also be scored from each successful free throw taken.

Fouls: A foul has been committed if a player hits, pushes, holds or charges at an opponent. If a foul is made during game play, there will be a turnover taken from the side line or baseline. If a foul is made whilst a shot is being taken, then a free throw will be awarded. **Violations:**

Double dribbling: A player must not dribble with 2 hands

or pick up the ball after dribbling and start dribbling again.

Travelling: A player can only take 2 steps after catching the ball.

Back court violation: Once an attacking player has dribbled the ball forward past the half way line, they must not take it back across whilst it is in their possession.

Time restrictions: The team in possession has 24 seconds on the shot clock, to make a shot.

If a violation is made, a turnover will occur and the ball will be given to the opposing team.







- 1. Dribbling
- 2. Passing and receiving
- 3. Defending
- 4. Shooting
- 5. Lay up and rebounding
- 6. Game play
- 7. Assessment

Positions





Passing - Sending the ball **Receiving** - Catching the ball Dribbling - Running whilst bouncing the ball in an attempt to beat an opponent Man marking - Guarding a specific player to prevent them from having success on the ball Zonal marking - Guarding a specific player to prevent your opponents from gaining success Tackling - To dispossess an opponent of the ball Interception - Preventing a pass between players Attacking - Making an attempt to score by passing or driving forward with the ball **Layup** - A shot taken close to the hoop whilst a player is moving Free throw - A shot given to a player after a foul, taken from the free throw line **Rebound** - Gaining possession of the ball after a shot Turnover - When an offensive team loses possession of the ball Travelling - Moving without dribbling the ball Point guard (PG) - They are quick and lead their team to assists and can create opportunities for themselves. Shooting guard (SG) - Score 3 pointers with ease, create space and are strong defenders. Small forward (SF) - Responsible for scoring, defending and often rebounds.

Power forward (PF) - Score close to the basket and mid-range jump shots.

Centre (C) - Usually plays near the baseline or close to the basket, they gather rebounds and contest shots.

Levels

Distance from the ground:

low, medium or high.



Formations

Shapes or patterns created in space by dancers.

Motif A movement phrase encapsulating an idea that is repeated and developed throughout the dance.

Timing

The use of time or counts when matching movements to sound and/or other dancers.

Choreography

The art of creating

dance.



Canon

When the same movements overlap in time.



Unison

Two or more dancers performing the same movement at the same time.



Lengthening one or more muscles or limbs.



Fartlek Training

Fartlek is a Swedish word meaning

'speed play'. It involves periods of

fast work with intermittent periods

of slower work.

Continuous Training

Involves working for a sustained

period of time without rest.

Weight Training

Weight training involves the use of

weights or resistance to cause

adaptations to the muscles.

Circuit Training

Involves completing a series of exercise, called stations, which are completed one after another, with a brief period of rest inbetween.

Interval Training

Involves alternating between periods of work and periods of

rest.

Static Stretching Involves holding a stretch for up

to 30 seconds.

Plyometric Training

Involves high-impact exercises that teach the muscles to perform their maximum contractions faster; to be more powerful. E.G jumping, hopping and bounding. **Agility** - The ability to move and change direction quickly, at speed, whilst maintaining control.

Balance - The ability to keep the body stable by maintaining the centre of mass over the base of support. There are two types of balance: Static: A balance is performed with little or no movement. E.G a handstand.

Components of Fitness

Dynamic: A baalnce is performed when movement takes place. E.G a cartwheel.

Cardiovascular endurance - The ability of the heart and lungs to supply oxygen to the working muscles.

Flexibility - The range of movement possible at a joint.

Muscular endurance - The ability of a muscle or muscle group to undergo repeated contractions, avoiding fatigue.

Power - Strength X Speed

Reaction time - The time taken to start responding to a stimulus.

Speed - Distance ÷ time.

Strength - The ability to overcome resistance

Coordination - The ability to use two or more different parts of the body together, smoothly and efficiently.



KS3

The Football Pitch



Key terminology

Passing - Sending the ball to another playerReceiving - Getting the ball from another playerDribbling - Running with the ball in an attempt to beat an opponent

Jockeying - Is the defender's skill of keeping between the attacker and their intended target (usually the goal)

Tackling - To dispossess an opponent of the ball **Marking** - A way to prevent your opponent from receiving or passing the ball, or taking a shot

Attacking - Making an attempt to score

Crossing - A cross is a medium to long range pass from a wide area of the field towards the opposition's goal

Shot - Attempting to score a goal

Offside - Moving into an area where you're not permitted

Interception - Preventing a pass between players

Football

- Lesson Overview
- 1. Passing and receiving
- 2. Dribbling and turns
- 3. Shooting
- 4. Heading
- 5. Attacking
- 6. Defending
- 7. Assessment



Goalkeeper - To prevent the opposing team from scoring.

Defenders - A defender is an outfield player whose primary role is to prevent the opposing team from scoring goals.

Midfielders - Midfielders are generally positioned on the field between their team's defenders and forwards. Strikers - Strikers are the players on a football team who play nearest the opposing team's goal, and are therefore the most responsible for scoring goals.



Rules of the Game

Starting the game - The game begins with the toss of a coin, and the winning captain decides which goal to defend or to take the first kick off.

Method of scoring - A goal is scored when the ball has completely crossed the goal line, provided that no other infringements have taken place.

Fouls - A foul has been committed if a player trips, kicks, pushes, charges another player recklessly, striking of any king, makes a tackle but connects with the player before the ball, deliberately handles the ball, obstructs an opponent or prevents them from releasing the ball.

Freekicks - Used to restart play after a foul or infringement has taken place. They are usually taken from the place from which the offence was committed. Free kicks can be direct (where the free kick taker may score directly) or indirect (where the free kick taker and a second player must touch the ball before a goal can be scored. **Penalty kick** - A penalty kick is awarded for a foul committed by a defending player in their own penalty area. The kick is taken from the penalty spot and all other players except for the goal keeper and penalty taker must be at least 9.15m from the spot.

KS3



Allowed	Not Allowed	Consequences
Throw and catch the	Block or kick the ball	Free throw to the
ball using hands and arms.	using your feet.	defending team.
Pass the ball to a	Hold the ball for more	Free throw to the
team mate.	than 3 seconds.	defending team.
Bounce the ball with	Bounce the ball, catch	Free throw to the
one hand and catch	it and bounce it again -	defending team.
t again.	dribble fault.	
Take a maximum of 3	Take more than 3 steps	Free throw to the
steps with the ball.	with the ball.,	defending team.
Move outside the goal area.	Enter the goal area.	Goalkeeper throw.
Touch the ball in the	Touch the ball lying in	Goalkeeper throw.
air above the goal	the goal area.	
area.		
Break through the	Charge the opponent.	Free throw to the
defence.		defending team.
Pass the ball in order	Keeping the ball in	Free throw to the
to create a scoring	possession without	defending team.
chance.	creating a scoring	
	chance - passive play.	
Use the hands and	Pull or hit the ball out	Free throw to the
arms to block the	of the hands of the	attacking team.
ball.	attacking player.	
Make a frontal body	Hold the attacking	Free
contact with the	players shirt/body,	throw/progressive
attacking player.	push/run into them.	punishment.
Stay outside of the	Use the goal area as a	7 metre throw.
goal area.	defence position.	
Stay 3m away from	Interfere with a player	Progressive
an opposing player	attempting to restart	punishment.
when restarting the	the game.	
game.		



Playing Positions and Officials

Goalkeeper — the player who defends the

goal with just about every part of the body! The goalkeeper is the only player who can touch the ball with their feet. **Centre** – a creative handball player who directs play in both defence and attack. Also known as the 'playmaker' and sets up the tactics and the players in shooting positions. **Left and right backs** – usually the largest players on the handball team. When defending, they try to block shots, and in attack they are the long-range handball shooters. **Circle runner** – the creative force in attack

and disruption to opponents when defending. The circle runner is quick and gets in among opposing defenders to either create openings for teammates or to get into a good scoring position themselves.

Left and right wingers – the fast players who patrol the sides of the court. They counter opposing wingers and in attack look to create openings for others, or shoot from the more difficult angles. Substitutes – substitution is allowed at any moment, without limit and without time stoppage. There are seven substitutes on the side lines for each handball side. But a substitute can't play until the player they are swapping for is off the court.

The officials – there are four handball officials: a scorekeeper; a timekeeper, and two referees who control the play at close quarters.





Goal Shooter (GS) - To score goals and to work in and around the circle with the GA. Goal Attack (GA) - To feed and work with the GS and to score goals. Wing Attack (WA) - To support the circle players, giving them shooting opportunities. **Centre (C)** - To take the centre pass and to link the defence and the attack. Wing Defence (WA) - To look for interceptions and prevent the WA from feeding the

circle.

Netball

Goal Defence (GD) - To win the ball and reduce the effectiveness of the GA. Goal Keeper (GK) - To work with the GD and to prevent the GA/GS from scoring goals.

Rules of the Game

Held ball - A player is only allowed to hold the ball for 3 seconds. A free pass is awarded to the opposing team if the ball is held for longer than 3 seconds. **Obstruction** - A player attempting to intercept the ball must be at least 3ft away from the player with the ball. The distance is measured from the landing foot of the player with the ball. If you are closer than 3ft, a penalty pass will be awarded.

Contact - This occurs when a players actions interfere with an opponent's play, this can be accidental or deliberate. This includes; physical contact, using any part of the body to limit an opponent's ability to move freely (pushing, tripping or holding), placing a hand on the ball held by an opponent, removing it from an opponent's possession or pushing the ball in to an opponent when holding it. **Over a third** - The ball cannot be thrown over a complete third without being touched or caught by a player. A free pass shall be taken from where the ball crossed the second line (i.e where the ball shouldn't have been)

Replayed ball - A player can not; toss the ball in to the air and catch it again without it being touched by another player, catch a rebound from a shot on goal if it has not touched the post or another player, or pick it up again after losing control if it has not been touched by another player.

Offside - A player with or without the ball cannot move into an area of the court that is not designated for their position. This will result in a free pass to the other team.

Footwork A player can receive the ball..

Goal Third

WD

WA

2

GA GD

Goal Line

Goal Circle

GS

GK

Goal Line

The Netball Court

1 Side Lines

Centre Third

3

C

L Side Lines L

everee lines -

1. With both feet grounded or jump to catch the ball and land with both feet at the same time. The player can then choose one foot to move (not both).

Goal Third Goal Line=

Goal Circl

5

GK

GS

GA

GD

4

WD

WA

2. Landing on one foot then the other. The first foot is the landing foot and this foot cannot be moved, other than to pivot on the spot. The second foot can move.

If you break the footwork rule, a free pass will be awarded to the other team.

Passing - sending the ball

Receiving - catching the ball

Footwork - how you land when in control of the bal

Dodging - a way to change direction quickly

Defending - preventing the other team from gaining possession of the ball and scoring

Attacking - making an attempt to score

Marking - a way to prevent your opponent from receiving or passing the ball or shooting

Shoot - attempt to score a goal

Offside - moving into an area where you're not permitted

Interception - preventing a pass between players

Throw in - a free pass taken off court

Centre Pass - taken to start or restart the game

Free Pass - awarded when there is an infringement of the rules by a player

Penalty Pass - as above, when two players are involved

Goal Third & Centre Third - areas of the court







Lesson Overview

2. Passing and receiving

1. Footwork

3. Timing of pass

4. Attacking play

6. Defensive play

7. Assessment

5. Shooting

The Game

You have 6 attempts to score a try. The defending team must stop the opposition from scoring by tackling the player with the ball. Once 6 tackles have been completed by the defending team the ball is turned over for the other team to try and score with 6 attempts.

Rules of the Game

The game starts with a **'kick off'** and this must be a drop kick.

There are 13 on field players per team.

The ball must be passed (out of hand) backwards only.

After 6 completed tackles the **'hand over'** rule applies and the ball is given to the other team.

No tackle should be above the shoulders and shoulder barging is penalised.

No 'stripping' the ball carrier of the ball.

No **rucks** or **mauls** can be formed.

Offside is when a player is in front of the ball and interferes with play or the ball is passed to them.

If the ball is kicked off the field of play this is called 'out of play' and the game restarts with a **'tap kick'** and they pass in field to a designated player.

A **scrum** is awarded for a knock on or a forward pass.

Players 8,9,10,11,12 and 13 form the scrum.

Player 9 is called the 'hooker' and is responsible for striking the ball back with his foot to player 13.

Player 7 is responsible for putting the ball in the scrum.

Penalty kicks are awarded for infringements of the rules, dangerous play, gamesmanship and dissent.

The referee can **sin bin** a player if they decide the offending player was unsafe in a tackle, dissent, carried out a dangerous act on the field and not playing to the laws of the game. If a player is sin binned they must leave the field of play for 10 minutes. More than 1 player can be sin binned at a time.

Red cards are awarded for serious offences and the player can not return to the game or be replaced.

Play the ball - After every completed tackle the player must stand up and play the ball.

Kicking the ball is allowed at any time but generally performed after the 4th or 5th tackle for tactical reasons.

Rugby



1 - Gathers and catches kicks from the opposition, tackles any player breaking through the line of defence and supports players 2,3,4,5 and 6 when attacking. Generally the smallest and fastest player on the pitch.

2,3,4,5 and 6 - Their main role is to score tries and defend the wide channels.

6 - The most creative player. Their main role is to create gaps and spaces to set up opportunities for 2,3,4 and 5 to score.

7 - Collects the ball from all restarts and links up with player 6 to create opportunities for attacking players

8,9,10,11,12 and 13 - These are the biggest players who form the scrum. They are responsible for defending the centre of the pitch, trying to break through the defensive wall of the opposition and set up opportunities for others to score.



Lesson Overview

Ball familiarisation
 Attacking play
 Passing and receiving
 Develop
 Use of width
 Tackling technique
 Assessment

Scoring Try = 4 points Conversion = 2 points Penalty = 2 points Drop goal = 1 point

KS3



Starting a game: Service is decided by a coin toss. **Service:**

The player serving must stand with the ball held behind the endline of the table.

The ball must be held over the height of the table in the palm of the free hand.

The server must toss the ball without spin, upwards, at least 16cm

The server cannot obstruct the sight of the ball, the opponent and umpire must have a clear view of the ball at all times.

When serving, the ball must bounce once on the servers side and then bounce at least once on the opponent's side. If the ball strikes the net but does not strike the opponent's half of the table, then a point is awarded to the opponent.

However, if the ball hits the net, but goes over and bounces on the other side, it is called a let. Play stops and the ball must be served again. A player commit any number of lets without a penalty.

Returning service:

To make a good return of service the ball must be returned before it bounces twice on your side of the table.

Hitting the ball:

The ball must be hit so that it passes over or around the net.

If a player cannot return a hit over or around the net so that the ball bounces on the opposite side of the table, the player loses the point.







SHAKEHANDS GRIP FRONT

SHAKEHANDS GRIP BACK

KS3





Key Terminology

Backhand: . shot done with the racket to the left of the elbow for a right hander, the reverse for a left hander.
Backspin: Backward spin placed on the ball.
Closed: Holding the racket such that he racket's hitting

surface is aimed downward, with the top edge leaning away from you.

Cross-table: A ball that is hit diagonally from corner to corner.

Dead: A ball without any spin.

Drive: The basic topspin shot or smash executed close to the table.Forehand: Any shot done with the racket to the right of the elbow for a right hander, the reverse for a left hander.

Game: Set. Each game is played to 11 points unless a deuce occurs. Game Point: Last point of a game.

Let: Service ball hitting the net or a distraction that causes the point played over. **Open:** Holding the racket such that he racket's hitting surface is aimed outward, with the top edge leaning towards you.

Push: A push is an underspin shot executed over the table, and usually close to the net. This is a passive shot that is used when it is impossible to attack a ball.

Rally: The period in which the ball is in play.

Shake hand: The most popular grip. It gives the best balance of forehand and backhand.

Spin: The rotation of a ball.

Topspin: Spin placed on a ball to allow it to curve down onto the table. **Stroke:** Any shot used in the game, including the serve.

Topspin: Spin placed on a ball to allow it to curve down onto the table.