

Year 9

HALF TERM 1

KNOWLEDGE ORGANISERS



Look at the information carefully. Read it three times. It may help to say it as you read it.



Cover it up with your hand or a piece of paper.



Write it out, from memory.



Check what you have written matches the information on the knowledge organiser exactly. Tick your work with a purple pen to show it is correct if it does.



If it doesn't match exactly, use your purple pen to correct it.



Orsett Heath
Academy

Masters of Recall

Week 1	Week 2	Week 3
Etymology: the history of a word and its origins Analogy: a comparison that shows a similarity Arbitrary: resulting from personal opinions, wishes, or feelings instead of from a rule or reason.	Controversy: a disagreement; debate Eliminate: terminate, end or take out. Suffrage: the right to vote in political elections.	Fundamental Rights: the basic rights guaranteed to every person by law. Feminist: someone who believes and supports equal rights and opportunities for women. Conjecture: an opinion formed on incomplete information.
Week 4	Week 5	Week 6
Prejudice: an unfair and unreasonable opinion or feeling, formed without enough thought or knowledge. Discrimination: the act of treating a person or group of people worse than others. Audacious: very bold or adventurous.	Perceive: to think of something in a particular way Anecdote: An amusing short story Denote: to be a mark or sign of.	Persuasive: having the ability to cause someone to do or believe something. Pertinent: relevant or applicable to a particular matter Zealous: filled with an intense enthusiasm toward a cause or activity.

Subject Mathematics Foundation

Topic Numbers

YEAR 9 TERM 1A

Week 1

Number: decimals, rounding, powers, roots, factors, multiples, primes

Integer	A whole number e.g. 5, 68, -3
Operation	The mathematical sum that you do e.g. multiply, divide, subtract, add, square, square root etc.
Product	The result of multiplying e.g. the product of 2 and 5 is 10

Multiples—all the numbers in the times table.

E.g. the multiples of 6 are 6, 12, 18, 24, 30

Lowest common multiple (LCM) - the lowest number that appears both lists of multiples.

E.g. the LCM of 4 and 5 is 20.

Multiples of 4 — 4, 8, 12, 16, 20, 24

Multiples of 5 — 5, 10, 15, 20, 25

Week 2

Prime number Has only 2 factors, 1 and itself. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

Square number The result of a number multiplied by itself e.g. $3^2 = 3 \times 3 = 9$, so 9 is a square number. 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

Cube number The result of a number multiplied by itself 3 times e.g. $3^3 = 3 \times 3 \times 3 = 27$, so 27 is a cube number. 1, 8, 27, 64, 125

Sparx independent learning codes:

U922	U600	U435	U417
U478	U735	U127	U293
U453	U868	U947	U742
U548	U851	U976	U480
U298	U731	U965	U225
U211	U751	U529	U751
U529	U236	U739	U250

Order of operations: is used for all calculations.

B – Brackets

I – Indices (powers and roots)

D and **M** – Division and Multiplication

A and **S** – Addition and Subtraction

Week 3

Remember: Finding the square root of a number is the opposite of squaring it e.g. $\sqrt{49} = 7$

Remember: Finding the cube root of a number is the opposite of cubing it e.g. $\sqrt[3]{27} = 3$

Rules for rounding:

4 or below → **ROUND Down**

5 or above → **ROUND Up**

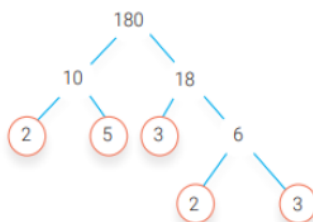
Week 4

Write 180 as a product of its prime factors:

$$2 \times 2 \times 3 \times 3 \times 5$$

Using index notation:

$$2^2 \times 3^2 \times 5$$



Week 5

Significant figures: The first significant figure (SF) is the first non-zero digit. The second SF is the digit immediately after the first, and the third SF is the third digit immediately after the second.

E.g. in the number 28390, 2 is the 1st SF, 8 is the 2nd SF & 3 is the 3rd SF.

E.g. in the number 0.0782, 7 is the 1st SF, 8 is the 2nd SF & 2 is the 3rd SF.

Estimation: When estimating, round each number in the calculation to 1 significant figure.

E.g. Estimate $\frac{53 \times 754}{18}$

$$\frac{53 \times 754}{18} \approx \frac{50 \times 800}{20} \approx \frac{40000}{20} \approx 2000$$

Week 6

Factors—Numbers that divide exactly into another number with no remainder

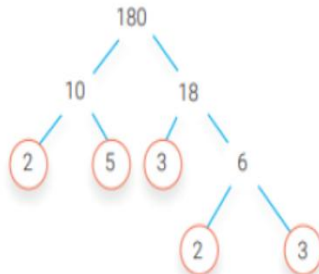
E.g. the factors of 18 are 1, 2, 3, 6, 9 and 18

Highest common factor (HCF) - the highest number that appears in both lists of factors

E.g. the HCF of 12 and 20 is 4

Factors of 12 — 1, 2, 3, 4, 6, 12

Factors of 20 — 1, 2, 4, 5, 10, 20

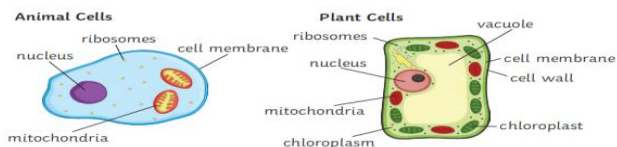
Week 1		Week 2		Week 3		
Integer A whole number e.g 9, 56 , -9 Product The result of multiplying e.g the product of 5and 6 is 30	Divisibility Rules! A number is divisible by...		Significant figures: The first significant figure (SF) is the first non-zero digit. The second SF is the digit immediately after the first, and the third SF is the third digit immediately after the second. E.g. in the number 28390, 2 is the 1st SF, 8 is the 2nd SF & 3 is the 3rd SF. E.g. in the number 0.0782, 7 is the 1st SF, 8 is the 2nd SF & 2 is the 3rd SF. Estimation: When estimating, round each number in the calculation to 1 significant figure. E.g. Estimate $\frac{53 \times 754}{18}$ $\frac{53 \times 754}{18} \approx \frac{50 \times 800}{20} \approx \frac{40000}{20} \approx 2000$		Prime numbers – Has only 2 factors 1 and itself 2,3,5,7,11,13,17,19,23,29,31,37,31,43 Square number – The result of a number multiplied by itself e.g 52= 5x5 =25 so 25 is a square number 1,4,9,16,25,36,49,100,121,144 Cube number – The result of a number multiplied by itself 3 times e.g 4 ³ = 4 x 4 x 4 = 64 1,8,27,64,125,216,343	
	2		if the last digit is even or zero.			
	3		if the sum of the digits is divisible by three.			
	4		if the last two digits are divisible by four.			
	5		if the last digit is zero or five.			
	6		if the number is divisible by both two and three.			
	8		if the last three digits are divisible by eight.			
	9		if the sum of the digits is divisible by nine.			
10		if the last digit is zero.				
Week 4			Week 5		Week 6	
Multiples —all the numbers in the times table. E.g. the multiples of 6 are 6, 12, 18, 24, 30 Lowest common multiple (LCM) - the lowest number that appears both lists of multiples. E.g. the LCM of 4 and 5 is 20. Multiples of 4 — 4, 8, 12, 16, 20 24 Multiples of 5 — 5, 10, 15, 20, 25			Factors —Numbers that divide exactly into another number with no remainder E.g. the factors of 18 are 1, 2, 3, 6, 9 and 18 Highest common factor (HCF) - the highest number that appears in both lists of factors E.g. the HCF of 12 and 20 is 4 Factors of 12 — 1, 2, 3, 4, 6, 12 Factors of 20 — 1, 2, 4, 5, 10, 20		Write 180 as a product of its prime factors: 2 x 2 x 3 x 3 x 5 Using index notation: 2 ² x 3 ² x 5 	
			Sparx independent learning codes:			
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			U478	U735	U127	U293
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			U298	U731	U965	U225
			U211	U751	U529	U751
			U529	U236	U739	U250

Subject - Science

Topic: B1 Cell Biology & B2 Organisation

YEAR9 TERM 1a

Week 1



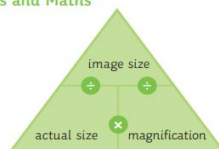
Plant and animal cells have similarities and differences:

	Animal	Plant
nucleus	✓	✓
cytoplasm	✓	✓
chloroplast	✗	✓
cell membrane	✓	✓
permanent vacuole	✗	✓
mitochondria	✓	✓
ribosomes	✓	✓
cell wall	✗	✓

Week 2

Equations and Maths

Equation



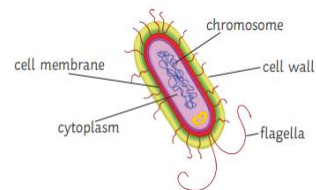
Maths Skills

Conversions:
Micrometres to millimetres: divide by 1000.

Standard Form:
 $0.003 = 3 \times 10^{-3}$

$5.6 \times 10^{-3} = 0.0056$

Bacterial cell

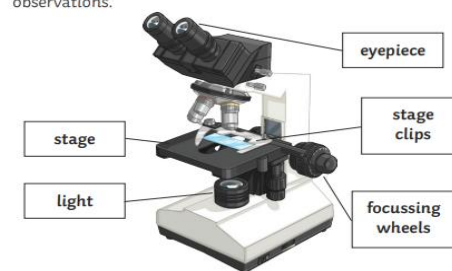


Week 3

Required Practical

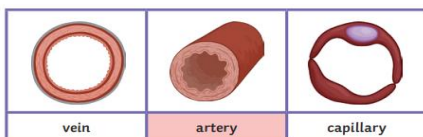
Microscopy Required Practical

- Includes preparing a slide, using a light microscope, drawing any observations – use a pencil and label important observations.



Week 4

Blood vessels



	Artery	Vein
direction of blood flow	away from the heart	towards the heart
oxygenated or deoxygenated blood?	oxygenated (except the pulmonary artery)	deoxygenated (except the pulmonary vein)
pressure	high	low (negative)
wall structure	thick, elastic, muscular, connective tissue for strength	thin, less muscular, less connective tissue
lumen (channel inside the vessel)	narrow	wide (with valves)

Week 5

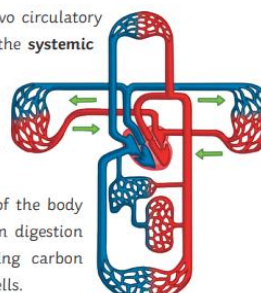
The heart as a double pump

The heart works as a **double pump** for two circulatory systems; the **pulmonary** circulation and the **systemic** circulation.

The pulmonary circulation serves the lungs and bring deoxygenated blood to exchange waste carbon dioxide gas for oxygen at the **alveoli**.

The systemic circulation serves the rest of the body and transports oxygen and nutrients from digestion to the cells of the body, whilst carrying carbon dioxide and other waste away from the cells.

The systemic circulation flows through the whole body. This means the blood is flowing at a much higher pressure than in the pulmonary circuit.



Week 6

Required practical: Food tests >

Enzymes

Enzyme	Reactant	Product
amylase	starch	sugars (glucose)
protease	protein	amino acids
lipase	lipid	glycerol and fatty acids

What are you testing for?	Which indicator do you use?	What does a positive result look like?
sugar	Benedict's reagent	Once heated, the solution will change from blue-green to yellow-red.
starch	iodine	Blue-black colour indicates starch is present.
protein	biuret	The solution will change from blue to pink-purple.
lipid	sudan III	The lipids will separate and the top layer will turn bright red.

Masters of Recall

Geography

Global Oceans

YEAR 9 TERM 1

Week 1	Week 2	Week 3
Carbon dioxide – a gas in the atmosphere that traps heat Governance – making decisions about a country or place to ensure citizens have safety, freedom and opportunities Greenhouse effect – a process where greenhouse gasses trap heat in the atmosphere Solar radiation – heat from the sun Photosynthesis – A process where plants make their own food	Characteristic – a description of what something is like e.g. deep or shallow Elevation – the height of the land or seafloor Ocean – enormous stores of saltwater Sea – sections of oceans partially enclosed by land Dispute – an official argument between countries or people	Territory – land belonging to a person or country Gulf Stream – an ocean current in the Atlantic Ocean Ocean current – a continuous, directed movement of ocean water Redistribute – to share something out differently from before, often more equally Carbon sink – a place that absorbs more carbon dioxide than it releases
Week 4	Week 5	Week 6
Ocean acidification – when the chemical balance lowers Carbonic acid – a liquid that forms when carbon dioxide dissolves in water Coral reef – a coastal ecosystem which forms between the tropics in shallow water Calcium carbonate – a solid made of calcium and carbon	Algae – a type of seaweed Biodiversity – the variety of plants and animals in an ecosystem Coral bleaching – when coral becomes stressed, turning white Toxin – a chemical that is harmful	Overfishing – when more fish are caught than can be replenished Restrict – to set limits on something Wave power – a type of renewable energy that uses energy from waves to generate electricity Spatial pattern – how something is arranged in a given space

History

WWI

YEAR 9 TERM 1

Week 1	Week 2	Week 3
Stalemate: A deadlock in which both sides are stuck and unable to advance or win, despite continuing to fight. Trench warfare: a type of fighting in which soldiers lived and fought from long, narrow ditches called trenches, dug into the ground for protection from enemy fire. The Battle of the Somme is an infamous battle from WWI because the British tactics led to a very high casualty rate. When we analyse sources we use: Content – what does the source say/show? Own Knowledge – what do I know that helps me understand this source? Provenance – the background or origin of a source. It explains who created it, when, where, why, and for whom, helping historians judge how useful and reliable it is.	No man's land: The strip of land between enemy trenches where there was little or no cover, making it extremely dangerous for soldiers to cross Dug Outs: Underground shelters dug into the walls of trenches where soldiers could rest, sleep, store supplies, and take cover from artillery attacks. Conditions in the trenches: • Often very muddy or waterlogged, leading to trench foot • Sometimes trench fever spread due to lice • Soldiers in the front-line trench rarely got proper sleep due to lack of space and threat of shelling.	Home Front: is to the country's civilian population and economy during a war, and how they support the fighting soldiers. Conscription: when the government makes people join the army by law. DORA: A law introduced in WWI that allowed the British government to control everyday life to help win the war, such as censoring newspapers, controlling food supplies, and restricting certain activities
Week 4	Week 5	Week 6
Women's jobs: women took up 'men's jobs' in WWI, including working in munitions factories, transport jobs and farming in the Women's Land Army. Propaganda: information designed to persuade people to support a particular idea or cause. Censorship: is when information is controlled or hidden so it cannot be fully shared with the public.	A colonial soldier is a soldier who served during WWI because they came from a country that was part of an empire of one of the 'main powers' in the war. Indian Soldiers served in WWI as they were part of the British Empire and were famous for their military prowess. Algerian soldiers fought in WWI as they were part of the French Empire.	Chinese men served as labourers. Racist ideas made the French and British think the Chinese were incapable of serving as soldiers. Canada was part of the British Empire, but they had their own government and controlled themselves. Many Canadian men signed up out of loyalty to the British Empire.

Week 1	Week 2	Week 3
- Quand je suis seul (e)→When I am alone - Je n'aime pas tellement →I don't particularly like - Je n'aime pas du tout→ I really don't like - lire→to read/reading - nager→to swim/swimming	- Tous les lundis→every Monday - Deux fois par semaine→twice a week - Après les cours→After class - Je chante dans la chorale→I sing in the choir -je ne joue jamais→I never play -Je ne fais rien→I do nothing	-Mon ami(e)s'appelle→ My friend is called -Il / elle est → he/she is -les cheveux raides → straight hair -les cheveux bouclés→wavy hair -des taches de rousseur→freckles -les yeux verts→green eyes
Week 4	Week 5	Week 6
-Je m'entends bien avec→I get on well with -Je me fâche contre→I get angry with -Je me dispute avec→I argue with -Il/elle a un bon sens de l'humour→He/she has a good sense of humour	-J'ai fêté mon anniversaire→I celebrated my birthday -J'ai ouvert mes cadeaux→I opened my presents -J'ai reçu→I received -J'ai lu → I read -J'ai bu → I drank	-Je vais porter → I am going to wear -emprunter → to borrow -un chapeau→ a hat -des chaussettes → some socks -un costume → a suit -une chemise → a shirt

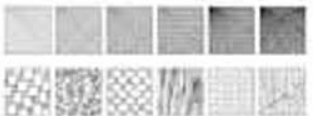
Subject:-RE

Topic:- War, Peace and Conflict

YEAR 9_ TERM 1_

Week 1	Week 2	Week 3														
Morality = The extent to which something is right or wrong. Pacifism = the opposition to war or violence as a means of settling disputes or gaining advantage. Conscientious objector = one who refuses to serve in the armed forces on grounds of conscience.	War Crime - an act carried out during the conduct of a war that violates accepted international rules of war. Geneva Convention:- a set of international rules that countries agree to follow during war. Their aim is to protect people who are not fighting. For example:- Wounded soldiers must be cared for Soldiers who are injured in battle must be given medical help, even if they are from the enemy side. Hospitals and doctors must not be attacked.	Nuclear weapon= is an explosive device that derives its destructive force from nuclear reactions. Chemical weapon= weapons that use chemicals to poison, paralyse or burn humans and destroy the natural environment. Biological weapons= weapons that have living organisms or infective material that can lead to disease or death.														
Week 4	Week 5	Week 6														
Just War Theory = is the idea that war can only be morally acceptable under certain conditions. Jus ad bellum: the <u>conditions</u> under which going to war is considered OK. Jus in bello: <u>how to fight</u> in a war so that you are doing the right thing.	Jihad: a struggle against evil, this may be an inward, personal struggle or an outward, collective struggle. Greater jihad: the <u>personal</u> inward struggle of all Muslims to live in line with the teaching of their faith. Lesser jihad: the <u>outward</u> struggle to defend one's faith, family and country from threat. Holy war: fighting for a religious cause or God, probably controlled by a religious leader.	<table><tr><td>1096 - 1271</td><td></td></tr><tr><td>1914 - 1918</td><td>First World War</td></tr><tr><td>1939 - 1945</td><td>Second World War</td></tr><tr><td>1947 - 1991</td><td>The Cold War</td></tr><tr><td>1955 - 1975</td><td>The Vietnam War</td></tr><tr><td>1967</td><td>Six Day War</td></tr><tr><td>2003 - 2011</td><td>The Iraq War</td></tr></table>	1096 - 1271		1914 - 1918	First World War	1939 - 1945	Second World War	1947 - 1991	The Cold War	1955 - 1975	The Vietnam War	1967	Six Day War	2003 - 2011	The Iraq War
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2003 - 2011	The Iraq War															

Masters of Recall

Week 1: Tone	Week 2: Geometric and Organic Shapes	Week 3: A Shape or a Form
TONE  Tone describes the lightness or darkness of a surface. A gradient is a series of tonal values from light to dark.  Tone can help to provide a form with value to give a sense of volume to a flat surface.	SHAPE Shape is an area enclosed by a line. It can be 2-dimensional and can be geometric or organic.  Geometric  Organic	FORM Forms are 3-dimensional shapes. They occupy space (like sculptures) or give the illusion that they occupy space (drawing). 
Week 4: Motif and Pattern	Week 5: Line	Week 6: Real or Implied Texture
PATTERN Pattern is a design that is created by repeating a formal element. It can be natural, like the stripes of a zebra, or man made, like a design on fabric. The image repeated is called a motif. These can be simple shapes or more complicated arrangements. 	LINE Line is a mark left by a moving point e.g. a pencil, or paint on a paintbrush. It can take many forms e.g. horizontal, diagonal, or curved.  Marks can be repeated and used to create patterns in order to give tone and texture to your drawing.	TEXTURE Texture is the surface quality of an object. Texture can be real or implied. Real texture can be felt e.g. tree bark, whereas implied texture creates the look of texture on a flat surface e.g. a drawing or a painting. 

Subject: Drama

Topic: Response to Stimulus

YEAR 9 TERM 1

Week 1	Week 2	Week 3
Devising Drama = Creating Drama from scratch – storyline, characters, message Stimulus = A starting point for devised drama. It could be an image, a song, a prop, a headline etc. Basic Planning for Devising must cover... Basic Storyline/Settings/Topics Scene Outline Character List Message for the audience?	Responding to an image: Who? What? Where? Why? Reviewing and Refining: Character & Subtext – are characters clear? Can an audience work out what their dramatic intention is in each scene? Pacing & Structure – Are scenes engaging? Could anything be cut or told in a different way? Are transitions slick? Staging & Technical Execution – is blocking clear? Creative? Are music, lights or props used? And if so, do they have a positive impact? Constructive Feedback – from peers and teachers; is everything clear? What are their honest thoughts? Can you let go of a favourite scene if it doesn't serve the devising message?	Responding to a news article: Who? What? Where? Why? News Report Drama: Formal & Informal Characters Split Screen & Cross Cutting Emotional Vocal & Physical Skills Narration & Direct Address Hot Seating: Typically, a rehearsal technique that uses open ended questions that are answered in role and will help the actor out more information about a character.
Week 4	Week 5	6 & 7
Piecing together a performance using: Rolling Montage = a devising technique where several short, overlapping still images or scenes are performed in a continuous loop. Actors move seamlessly from one location or time period to the next without leaving the stage. It is often used to show a sequence of events, track character progress, or build dramatic tension. News Report = Students explore reporting styles, adapt narratives for specific audiences, and apply performance skills like direct address, multi-rolling, and controlled physicality to communicate information effectively Split Screen = (a technique used with cross-cutting) is a drama technique borrowed from the world of film editing, where two scenes are intercut to establish continuity.	Verbatim = a style of drama where actors create a play using the exact words of real people. The script comes from recorded interviews, news reports, or public records. Actors carefully copy the exact speech patterns—including pauses, stutters, and slang—to bring authentic voices to the stage. Review and Refine = Reviewing and refining a devised performance means moving beyond your initial ideas to make the drama more impactful and polished. It means improving your work by responding positively and creatively to feedback.	Performing & Responding Analysis: Examining the specific theatrical skills (such as vocal tone or body language) used to communicate meaning or a character's thoughts. It investigates <i>how</i> a specific technique was applied and <i>why</i> it was used. Evaluation: Assessing the effectiveness of your devised piece. It looks at the bigger picture to judge whether your aims were achieved and how the performance impacted the audience's thoughts or feelings.

Subject: MUSIC

Topic: KEYBOARD HISTORY

YEAR 9 TERM 1.1

Week 1	Week 2	Week 3
BAROQUE PERIOD Approximately 1600 to 1750. The orchestra was born, opera kicked off in a big way and the concerto gave soloists the chance to properly show off. The ground bass was regularly used. GROUND BASS A short theme, usually in the bass, which is constantly repeated as the other parts of the music vary. HARPSICHORD A keyboard instrument with horizontal strings which are plucked. It was used mainly in the Baroque period.	CLASSICAL PERIOD Approximately 1750 to 1830. The new sound of the classical period tended to focus on simplifying things a little bit, but also making them bigger. The orchestra became bigger and symphonies were very popular. PIANOFORTE The full name of the piano. Literally meaning soft and loud.	ROMANTIC PERIOD Approximately 1830 to 1900. Music became about breaking boundaries and expressing emotion. KEYBOARD An electronic piano. LEITMOTIF A short musical idea or theme linked to a particular character, place, object, or idea that returns throughout a piece.
Week 4	Week 5	Week 6
PACHELBEL'S CANON (BAROQUE) ACCOMPANIMENT The musical support provided to a melody. SEQUENCE A musical pattern repeated at higher or lower pitches. HARMONY Two or more notes played together to support a melody.	TWINKLE, TWINKLE LITTLE STAR (CLASSICAL) THEME The main musical idea or tune of a piece. VARIATION A changed version of a theme while keeping recognisable features. MELODY The main tune of a piece of music.	IN THE HALL OF THE MOUNTAIN KING (ROMANTIC) OSTINATO A short musical pattern that is repeatedly played. CRESCENDO Gradually becoming louder. TEMPO The speed of the music.

Theme 1 : Weight Transfer (Using WT to confuse)	Theme 2 : Passing (Developing a sequence of passes)	Theme 3: Travelling and Movement (Increase creativity using space)
Weight transfer: Moving your body weight from one position to another to create movement Activity specific examples : Rugby: Using and timing the side step to either beat an opponent or create space for others , best used in a 2v1 situation Football: Transferring weight to drop the shoulder and change direction to make space for a pass, shot or dribble Handball: Transferring weight to disguise the next move or beat an opponent Netball: Using weight transfer to confuse the opponent and find space	Why do we need to build a sequence of passes? Rugby: Passing the ball quickly down the attacking line to exploit and find space rather than running into contact Football: - Developing a sequence of shorter passes to try and create space for a line breaking pass or longer pass Handball: - Developing a sequence of passes to break down the zonal defence of the opposition Netball: - Developing a sequence of passes to move through the thirds with less chance of the ball being intercepted	Rugby: - Loops and double loops - Running from deep for kicks to gain territory or break the line, ensuring you are behind the ball on contact Football: - 3rd man run – ball is played to the striker by a midfielder, ball is set back and then a longer pass is played to a midfielder who has run beyond the striker. - Dribbling/ Driving (To progress forward with the ball) - Overlap (To create an option on the outside of the player with the ball) - Underlap (To create an option on the inside of the player with the ball) Handball: - Fast Break to counter - Screen in handball to create space for person with the ball - Overlap (To create an option on the outside of the player with the ball) - Underlap (To create an option on the inside of the player with the ball) Netball: - Square passing- Always offering a forward or side pass option - Overlaps on centre pass
Every Lesson	Every Lesson	
Components of a warm- up: Pulse raiser- Movements to increase heart rate, jogging, jumping etc. Static stretches – stretches held for 8-12 seconds to prepare muscles for exercise Dynamic stretches- Movements that increase temperature of muscles and loosen joints	Short term effects of the cardiovascular system: - Heart rate increases (bpm) to pump oxygen to working muscles - Higher Cardiac Output- amount of blood pumped per minute - Vascular shunting – redistribution of blood to working muscles	