Knowledge Book

Year 11

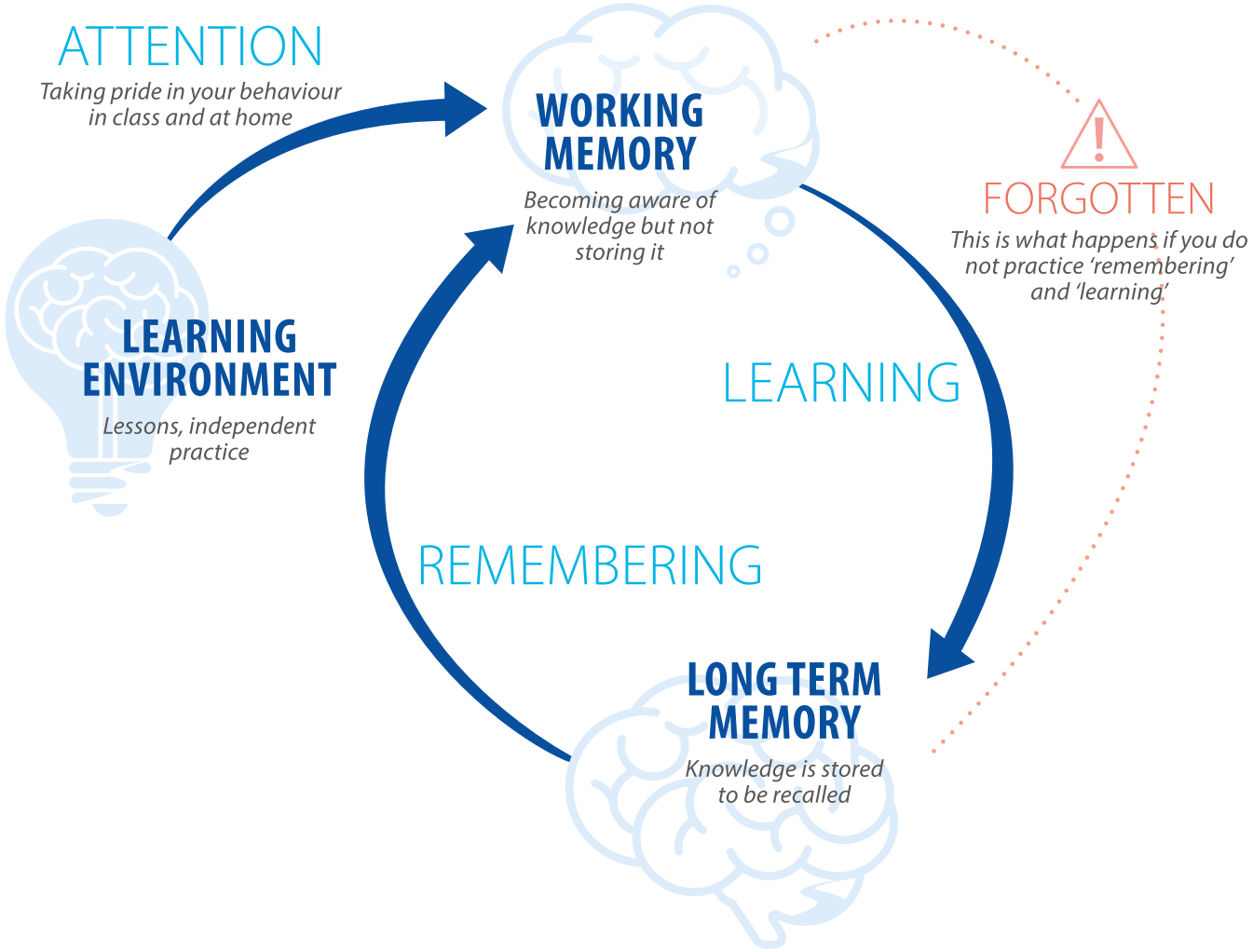
Cycle Two

Name:

West Exe School

community • opportunity • success

THIS IS HOW YOU LEARN



REMEMBERING: MASTERING YOUR MEMORY

Learning is what happens when knowledge moves from your **working memory** to your **long-term memory.**

Your **working memory** is like a desktop on your computer. If the information is not saved, then it will be **forgotten.**

Your **long-term memory** is like a computer hard drive. **Remembering** is what happens when you access the information in your **long-term memory.**

You can take practical steps to improve your ability to **learn** and **remember** key information and become the master of your memory.

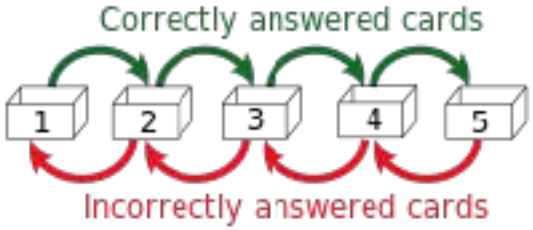
Our ability to learn and remember is enhanced when we engage in activities that test what we remember. 'The testing effect' is a proven way of enhancing our long-term memory which gives us clear feedback on gaps in our learning. Therefore, regular quizzing is a vital part of our curriculum.

REMEMBERING: MASTERING YOUR MEMORY

The Leitner Revision System

1. Get 5 boxes/envelopes/containers and label them 1-5.
2. Create flash cards with key knowledge on one side and questions linked to the knowledge on the other.
3. Organise the cards into 5 boxes based on the knowledge you know best. Box 1 will contain the topics you are least comfortable with, 5 the ones you know really well.
4. Organise the timetable to look at the cards based on how well you know them. For example, you might look at box 1 cards once a day. You might look at box 3 cards 3 times a week and box 5 cards once a week.
5. When looking at a card, try to answer the questions without looking at the information. If you can do it, move the card to the next number box up. If you can't revise the information and move it to the next number box down.

This will focus more revision on topics you find harder and less on topics you will find easier.



Link to Learning

The Leitner Revision System is specifically designed to strengthen the connections between your working and long term memory.

Spacing your learning and remembering means you are preventing that previous knowledge from being forgotten.

Year 11 Extended Practice Timetable & Study Skill

As year 11 students, you have been using knowledge organisers for several years now and should be confident in their use. As we move into the year of your exams, it is tie to widen your extended practice timetable to incorporate plenty of exam practice and daily revision.

- **Your are expected to spend 90 minutes on extended practice each day, with additional time on Friday and over the weekend for Science.**
- **There are four subjects to study each day. You should spent the correct amount of time allocated to each subject.**
- **You will be assessed on the knowledge in your knowledge book for every subject throughout each cycle. In addition, you will be expected to answer exam questions set on the Online Platform, as well as complete your daily tasks on Sparx, Seneca.**
- **You will need to do your extended practice for each subject on the timetabled day. Your tutor will check this several times a week.**
- **If you have not competed your extended practice for each subject, you will receive a one-hour after school extended practice detention to be carried out later that day.**

Google Classroom Class Codes

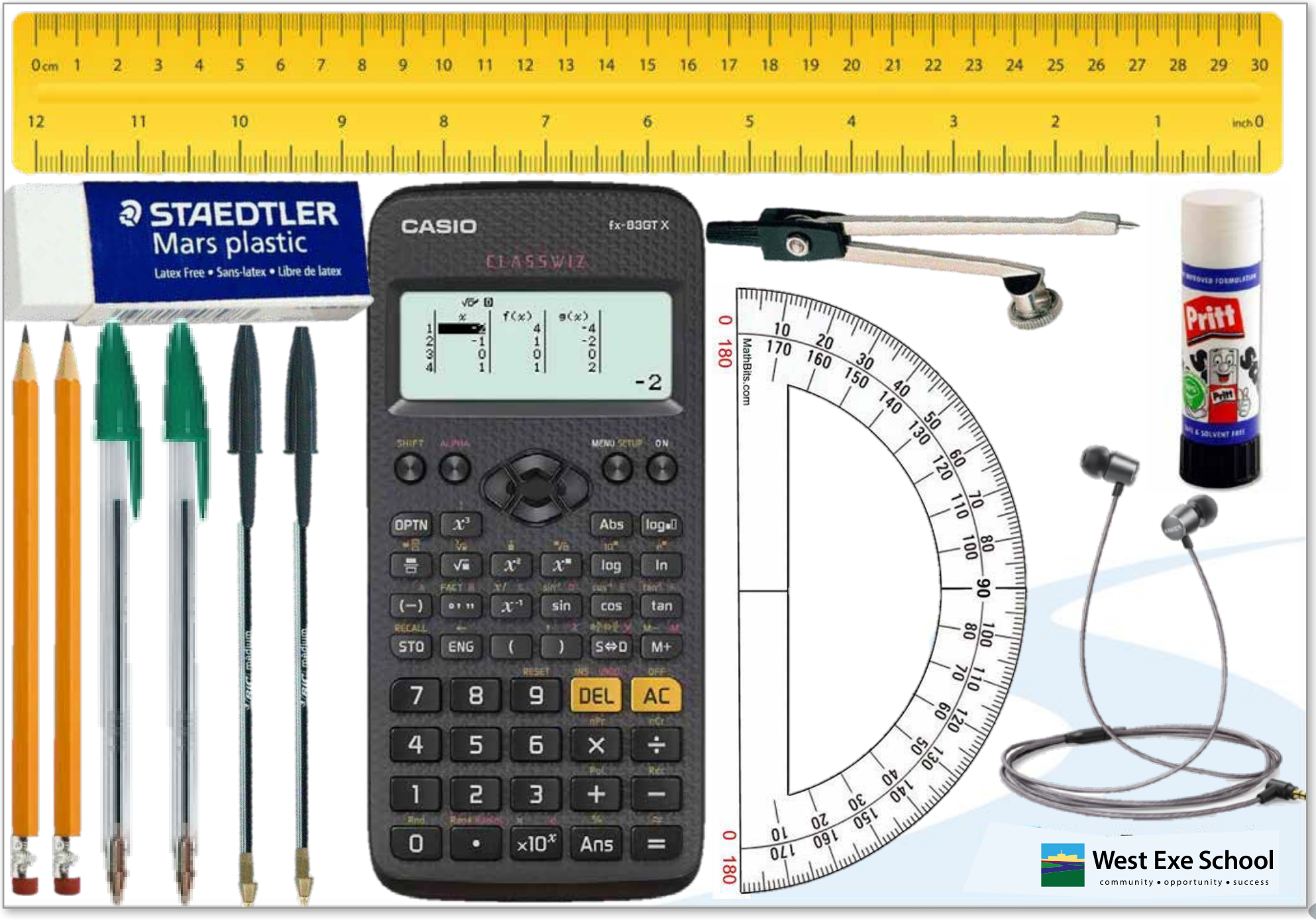
Subject	GC Code
Dashboard	ls3c4mh
English	mt3dncv
Geography	pnogxmd
History	vcnd4i7
Mathematics	2w3rhxd
Science	d6xkam5
Spanish	xd265ty
Art& Design	hiaa4pc
Biology	a5xoeix
Business	5aanpzu
Chemistry	zkfbpu3
Child Development	wdpuctn
Citizenship	7hfwmv7
Drama	bzfyfz2
Economics	7k5f66g
Health & Social Care	en77xfl
Photography	zdhkrla
Physics	l5xcmwx
Sports Vocational	vdc7f5w
Statistics & Further Maths	po4ozkl

	15 mins	15 mins	30 mins	30 mins
Monday	Science - Educake	Spanish or French	Maths - SPARX	Option P
Tuesday	Science - Educake	Spanish or French	Maths - SPARX	Geography or History *Questions and task on Online Platform*
Wednesday	Science - Educake	Spanish or French	Maths - SPARX	Option Q
Thursday	Science - Educake	Spanish or French	Maths - SPARX	Geography or History *Questions and task on Online Platform*
Friday + 30 minutes	Science - Educake	Spanish or French	Maths - SPARX	English Language Exam *question set on Online Platform*

Remember: Year 11 Maths - Sparx Extended Practice

For year 11, there are some changes to your extended practice. The is the expectation that you will be completing the equivalent of 30 minutes of maths a night, which equates to 2.5 hours a week.

Day	Action	Consequence if not achieved
Friday	Sparx extended revision released.	
Sat/Sun	**Use this time wisely to start your extended practice.**	
Monday	Compulsory extended practice must have been started by now.	You will be expected to attend Sparx extended practice club in maths if you have not begun your compulsory.
Tuesday	Time in tutor to work on target extended practice.	If you are struggling with your target you should come to extended practice club to get help.
Wednesday	Compulsory and target extended practice complete.	If you have not completed both compulsory and target, then you will be in detention afterschool, failure to comply will result in a Reset.


STAEDTLER
Mars plastic
Latex Free • Sans-latex • Libre de latex
CASIO
fx-83GT X
CLASSWIZ
-2
Pritt
MathBits.com
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HOUSE WEEK & OUR WEST EXE VALUES

HOUSE WEEK, WEST EXE SCHOOL & BRITISH VALUES

	West Exe School Student Attributes	British Values	House Week Activities	Key Questions
House Week 1	**Kind** **Adaptable**	**Democracy** Understanding how citizens can influence decision-making through the democratic process. **Rule of Law** Appreciating that living under the rule of law protects individual citizens and is essential for their wellbeing and safety.	• School Parliament Elections • House Charity Vote	What is a good citizen? What behaviours would we expect of a good citizen? Do we need rules?
House Week 2	**Curious** **Ambitious**	**Tolerance and Mutual Respect** Accepting that other people having different faiths or beliefs to oneself (or having none) should be accepted and tolerated, and should not be the cause of prejudicial or discriminatory behaviour. Importance of identifying and combating discrimination.	• Charity Fundraising • Anti-bulling Ambassadors Activities • Green Team Activities • Mental Health • Celebrating Diversity	What is tolerance? Is tolerance enough? How does our community proactively combat discrimination?
House Week 3	**Resilient** **Proud**	**Individual Liberty** Understanding that the freedom to choose and hold other faiths and beliefs is protected by law.	• Transition Focused Activities • Sports Day • Taster Sessions (being brave and trying new things)	What does it mean to succeed? How do individuals demonstrate courage in our community? How is our individual liberty protected?

Dream More. Do More. Become More.

BULLYING UPDATE - YEAR 11

Stop!

"Each of us deserves the freedom to pursue our own version of happiness. No one deserves to be bullied'"

Barack Obama

Bullying affects lots of people and can happen anywhere: at school, travelling to and from school, in sporting teams, in friendship or family groups or in the workplace.

Bullying can take may forms including:

- Emotional abuse
- Social media
- Social exlusion
- Threatening behaviour
- Name calling
- Cyberbullying
- Sexting
- Sexual exploiration

Average child posts 26 times a day on social media - but only 6 - out of 10 followers are really friends!

Speak

"Don't you ever let a soul in the world tell you that you can't be exactly who you are"

Lady Gaga

Speak to someone. No one has a magic wand but we always do our best and we really do care.

There are lots of things you can do to keep yourself safe online.

- Think before you post
- Don't share personal details
- Watch out for phishing and scams
- Think about who you are talking to.
- Keep your device secure
- Never give out your password
- Cover your webcam
- Use strong passwords
- Report anything you are unsure of

Images sent on sites like Snapchat can still be saved and screenshotted, they stay FOREVER!

Set, protect, and respect boundaries for yourself!

Talk to someone you trust!

Speak

"Blowing out someone else's candles doesn't make yours shine any brighter"

Drake

What we do at West Exe to deal with bullying:

Whatever your worry, it's better out than in!

Mentoring is having a named person you can go to for support at school.

Peer mentoring is when older students are trained to become buddies providing support and someone to talk to nearer their own age. This helps everyone in school learn that bullying is not acceptable.

Restorative justice brings all children involved together so everyone affected plays a part in repairing the harm and finding a positive way forward.

Remember: there is no reason for you to ever put up with any kind of bullying.

YOUNGMiNDS
fighting for young people's mental health

NSPCC HELPLINE
0808 800 5000
help@nspcc.org.uk

TALKING FUTURES

Community

You don't need to know what job you want in the future. However, starting to explore the possibilities and looking at labour market information to discover what our local and national community needs can be helpful. Use your CareerPilot account to explore some options.

Opportunity

Our promise to you: The Talking Futures offer has lots in store for you this year;

- CareerPilot sessions
- Assembly about "Next Steps"
- 1:1 with a Career Advisor
- Post-16 application support
- Teachers will talk about real life applications

Success

The qualifications you are working towards will open doors to you when you care choosing post-16 options. Here is a break down of the type of course you might choose.

Traineeship: Up to 6 months in preparation for an apprenticeship, involves work experience.

Apprenticeship: Employed and paid a wage whilst working towards a job specific qualification.

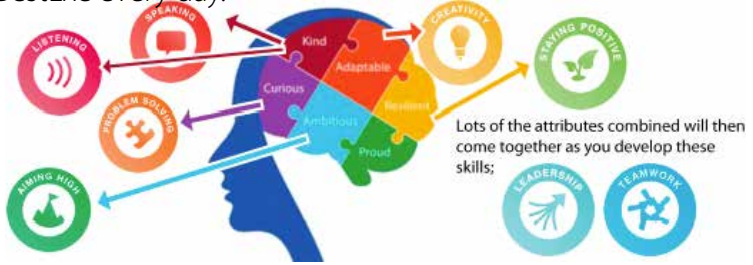
Applied Vocational Subjects: Practical courses related to a specific job or career area.

T Levels: A mix of classroom learning and "on-the-job" experience preparing for a specific job.

A Levels: Main academic route after GCSEs. Can be taken alongside vocational qualifications.

International Baccalaureate (IB): Internationally recognised 2 year course prepares for University or employment.

Employers tell us that in addition to the qualifications you gain at school, there are certain skills they are looking for. These all fit link to our student attributes, so strive to be your #BestExe every day.



My Ambition Statement

SPORT, HEALTH AND NUTRITION

Opportunities: Fitness suite, PE lessons, Sports clubs, Parkruns, fitness tests, walking/cycling to school.

Healthy choices: 5-a-day, less salt and sugar, more fibre, limit intake of fat, smaller portions.

Teamwork, Leadership and Communication: Fair play, equality and inclusion - House matches, fixtures, clubs, being a coach or official.

Healthy body - healthy mind! Links between physical activity and mental wellbeing. WES 10-a-day.

Targets and Goals: Being positive, being resilient, never giving up, doing your #BestExe, being a good role model.

Understand the importance of sleep: 8- 10 hours to function effectively. Rest and recovery as an important part of exercise, performance and digestion.

Get Physically Active! Aim to do 60 mins of moderate-vigorous physical activity each day across the week. Take part in activities that develop movement skills, muscles and bones. Reduce the time spent sitting or lying down - spread activity throughout the day. Monitor and regulate your screen time.

Be active daily: Make healthy lifestyle and nutrition choices. Understand the life long benefits and know how to stay healthy.

SPORT, HEALTH AND NUTRITION - Healthy ME

You should choose something from each column each week to focus on in your lesson.
Once you have completed the task put a tick next to the activity. You should try to complete all of these over the cycle.

Physical ME

Skill development: Make a list of 5 new skills you have improved on during this cycle (e.g. shooting in handball or chopping technique in food). ☐

Attend an after-school club to help you develop and improve these skills further. ☐

Developing fitness

For one of the sports, you are covering in this cycle, **identify the main components of fitness needed.** ☐

Engage in periods of sustained physical activity.

The NHS recommends that you do 2 types of physical activity each week:

1. Aerobic exercise.
2. Exercises to strengthen muscles and bones.

Young people aged 5-18 should:

- Aim to do 60 mins of moderate-vigorous physical activity each day across the week.
- Take part in activities that develop movement skills, muscles and bones.
- Reduce the time spent sitting or lying down - spread activity throughout the day. Monitor and regulate your screen time.

Keep a log of your activity levels for a typical week - see if you meet the NHS guidelines.

Monitor your screen time for a week. ☐

Use equipment safely and hygienically.

Think about the activities you are doing in this cycle and in each session be conscious of at least 2 safety considerations needed. ☐

Cook a healthy meal from one of the recipes you have done in food this cycle. ☐

Thinking (Mental) ME

Making appropriate time for **rest, relaxation, and sleep -** Having routines that support positive mental health.

Try to get 8-10 hours of good quality sleep a night!

Rules, strategies and tactics. Think about:

- What are the main **rules** for the sport you are covering now? Write down 3 rules you have learnt. ☐
- Can you give an example of a **simple strategy or tactic** you have been using? ☐
- Can you give an example of a more **complex strategy or tactic** you have been using? ☐
- **Give 3 rules you must follow in the kitchen.** ☐

Terminology:

Give 3 examples of terminology you have learnt in any of your SHN lessons. ☐

Knowledge of muscles and bones - how many muscles and bones can you label correctly? ☐

Being resilient - positive growth mindset and never give up attitude- always looking to improve! **Give an example of how you have demonstrated resilience in your lessons.** If you found something challenging/ difficult but kept trying - How did you feel afterwards? ☐

Social ME

Leadership - Taking responsibility within lessons (e.g. officiating, leading warm ups or practices or supporting food preparation in food lessons).

- **Offer to be a leader for a lesson!** ☐
- **Help another person in a lesson to help them make progress.** ☐
- **Officiate a game.** ☐
- **Give feedback and support to another person.** ☐
- **Motivate and encourage others in a lesson.** ☐
- **Make an effort to INCLUDE another less confident person in your lesson. Help others learn - coaching.** ☐

Teamwork - Working together - Work co-operatively, work collaboratively to achieve a goal. ☐

Give 2 examples of where you have shown good teamwork. ☐

Communication

Verbal - give some feedback on a performance - What went well? How could they improve it? ☐

Non-verbal - Use of whistle, signals as an official, use of a demonstration **- Try to do one of these each week.** ☐

YST ACTIVE IN MIND

Body

Hydration

I can drink more water by…

I need _____ water each day.

Sleep

I need _____ hours of sleep.

I could improve my sleep by...

Exercise

What exercise could I do?

I need 60 minutes of exercise a day

I could add exercise to my day by…

Diet

I could improve my diet by…

Environment

Your environment influences who you become, what you believe and do.

Who can support you?

How does technology affect your attention, mood, sleep and memory?

I will change my technology use by…

When we are organised we feel calmer. How could you be more organised?

What could you change at home

Mind

What am I worrying about?

Is there anything I can do about it?

No? Let it go.

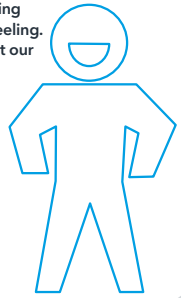
Yes? Do it now or make a plan about how and when you will do it.

Power poses

How we are sitting or standing tells our brain how we are feeling. Powerful postures can affect our mood and confidence. Think about someone who is confident or brave. What is their posture like?

Try this posture:

1. Stand/sit tall with your shoulders back
2. Hold your head up
3. Smile



Tips for learning new skills

1. Avoid distractions.
2. Make your environment comfortable.
3. Get some water to drink.
4. Prepare all your equipment and materials.
5. Use bright coloured paper and pens.
6. Use pictures and diagrams.
7. Practice in chunks of time, taking regular breaks.
8. Give yourself enough time.

Stressors

What are my stressors?

What stresses me out...

What happens to your mind and body when you feel stressed? Does your heart beat faster? Do your thoughts become confused? Write down all the things you notice.

What can you do to influence your body's response to stress?

Positive thoughts

Your brain changes based on what you think. We can help our brain to change positively by using positive statements. Complete the "I am..." in the box with the word you want to become. For example: "I am confident" or "I am calm"

I am...

Visualisation

Athletes practice their skills in their mind by imagining themselves winning. This helps their brain learn how to be successful. Create a picture in your mind of something you want to achieve. Draw the picture in the box of what you will visualise.

Mindfulness

Mindfulness helps our brain to be calm and to learn how to focus. Try this mindfulness exercise:

Trace your fingers around your opposite hand.

Breathe in, slide up

Breathe out, slide down

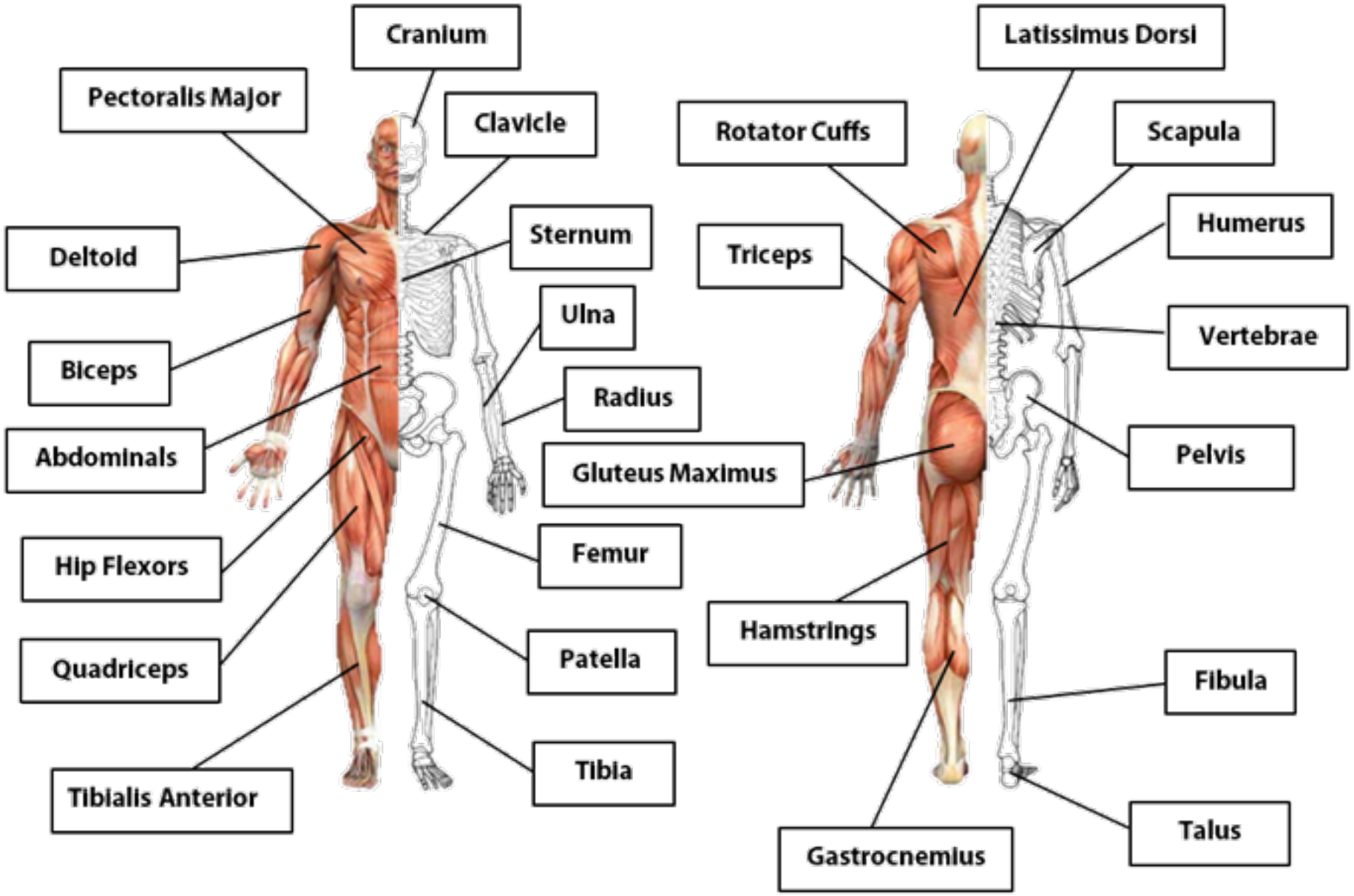
Grateful

When we focus on what we are grateful for our brain notices more of the things which help us to feel happy. Everyday write down one thing you are grateful for. What are you grateful for today?

I am grateful for...

New habits and actions

SPORT, HEALTH AND NUTRITION - Muscles and Bones

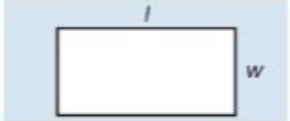


YEAR 11 CYCLE 2 MATHS - Foundation Formula Quiz

Weeks 1, 2 &3

Areas

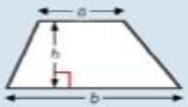
Rectangle = $l \times w$



Parallelogram = $b \times h$

Triangle = $\frac{1}{2} \times b \times h$

Trapezium = $\frac{1}{2}(a+b)h$



Circles

Circumference =

$\pi \times diameter = \pi d$

$2 \times \pi \times radius = 2\pi r$

Area of a circle =

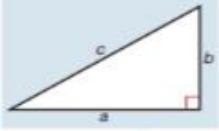
$\pi \times radius\ squared = \pi r^2$

Right-angled triangles

Pythagoras' Theorem

For a right-angled triangle,

$a^2 + b^2 = c^2$



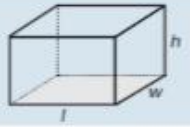
Trigonometric ratios (*new to F*)

$\sin x° = \frac{opp}{hyp}$, $\cos x° = \frac{adj}{hyp}$, $\tan x° = \frac{opp}{adj}$

Weeks 4, 5 & 6

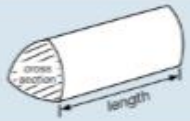
Volumes

Cuboid = $l \times w \times h$



Prism =

$area\ of\ cross\ section \times length$



Cylinder = $\pi r^2 h$

Compound measures

Speed

speed = $\frac{distance}{time}$

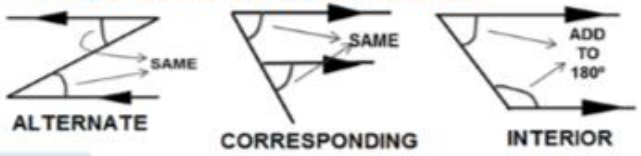
Density

density = $\frac{mass}{volume}$

Pressure

pressure = $\frac{force}{area}$

Angles formed by parallel lines



Weeks 7, 8 & 9

Constructing Pie Charts

The angle to draw for each sector is

$$\text{Angle} = \frac{\text{frequency}}{\text{total}} \times 360°$$

Angles in Polygons

Sum of Interior Angles = $(n-2) \times 180°$

Where n is the number of sides of the shape

Exterior Angles add up to 360°

One exterior angle in a REGULAR polygon = $\frac{360°}{n}$

$Interior + Exterior = 180°$

Other useful formulae

$gradient = \frac{change\ in\ y}{change\ in\ x}$

$\%\ change = \frac{difference}{original} \times 100$

Types of numbers

SQUARE NUMBERS

→ 1, 4, 9, 16, 25, 36, 49, 64, 81, 100 etc

(1x1) (2x2) (3x3) (4x4) (5x5) (6x6) (7x7) (8x8) (9x9) (10x10)

CUBE NUMBERS

→ 1, 8, 27, 64, 125 etc

(1x1x1) (2x2x2) (3x3x3) (4x4x4) (5x5x5)

PRIME NUMBERS

→ 2, 3, 5, 7, 11, 13, 17, 19, 23, 29 etc

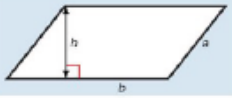
Foundation Formula Quiz

YEAR 11 CYCLE 2 MATHS - Higher Formula Quiz

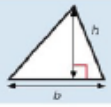
Weeks 1, 2 &3

Areas

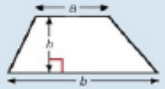
Parallelogram = $b \times h$



Triangle = $\frac{1}{2} \times b \times h$



Trapezium = $\frac{1}{2}(a+b)h$



Circles

Circumference =

$\pi \times diameter = \pi d$

OR

$2 \times \pi \times radius = 2\pi r$

Area of a circle =

$\pi \times radius\ squared = \pi r^2$

Area of a Sector

$A = \frac{\theta}{360°} \times \pi r^2$

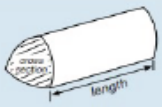
Length of an Arc

$A = \frac{\theta}{360°} \times \pi d$

Volumes

Prism =

$area\ of\ cross\ section \times length$



Cylinder = $\pi r^2 h$

Volume of pyramid =

$\frac{1}{3} \times area\ of\ base \times h$

Weeks 4, 5 & 6

Angles in Polygons

Sum of Interior Angles $= (n-2) \times 180°$

Where n is the number of sides of the shape

Exterior Angles add up to 360°

One exterior angle in a REGULAR polygon $= \frac{360°}{n}$

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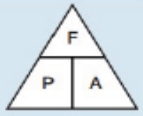

Right-angled triangles

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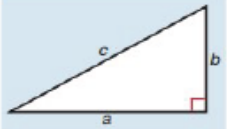
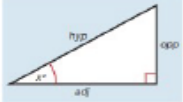


Trigonometric ratios (*new to F*)

$\sin x° = \frac{opp}{hyp}$, $\cos x° = \frac{adj}{hyp}$, $\tan x° = \frac{opp}{adj}$



Angles formed by parallel lines

ALTERNATE

CORRESPONDING

INTERIOR

Weeks 7, 8 & 9

Quadratic equations

The Quadratic Equation

To solve a quadratic equation in the form:

$ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Indices and surds

$a^0 = 1$ $\quad a^{\frac{1}{2}} = \sqrt{a}$

$a^{-n} = \frac{1}{a^n}$ $\quad a^{\frac{1}{n}} = \sqrt[n]{a}$

$\sqrt{a \times b} = \sqrt{a} \times \sqrt{b}$

$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$

Straight lines

$gradient = \frac{change\ in\ y}{change\ in\ x}$

Given a gradient of a line m, the gradient of the line perpendicular to it is: $-\frac{1}{m}$

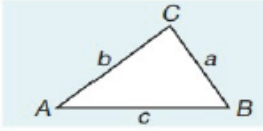
Perpendicular gradients multiply to give –1.

Trigonometric formulae

Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle $= \frac{1}{2}ab \sin C$



x	0°	30°	45°	60°	90°
$\sin x$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
$\cos x$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
$\tan x$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	Undefined (asymptote)

YEAR 11 CYCLE 2 COMBINED SCIENCE

Year 11 Combined Science Cycle Two

Exam topics

1. Each exam is worth **16%** of your final grade

Biology paper 1 (70 minutes, 60 marks):

a) CB1 key concepts
b) CB2 cells and control
c) CB3: genetics
d) CB4: natural selection and genetic modification
e) CB5: health, disease and the development of medicines

Chemistry paper 3 (70 minutes, 60 marks):

a) CC1 states of matter
b) CC2 separating and purifying substances
c) CC3 atomic structure
d) CC4 periodic table
e) CC5 ionic bonding
f) CC6 covalent bonding
g) CC7 types of substance
h) CC8 acids and alkalis
i) CC9 calculations involving masses
j) CC10 electrolytic processes
k) CC11 obtaining and using metals
l) CC12 reversible reactions and equilibria

Physics paper 5 (70 minutes, 60 marks):

a) CP1 motion
b) CP2 forces and motion
c) CP3 conservation of energy
d) CP4 waves
e) CP5 light and EM spectrum
f) CP6 radioactivity

Biology paper 2 (70 minutes, 60 marks):

a) CB1: key concepts
b) CB6: plant structures and their functions
c) CB7: animal co-ordination, control and homeostasis
d) CB8: exchange and transport in animals
e) CB9: ecosystems and material cycles

Week One

Chemistry paper 4 (70 minutes, 60 marks):

a) CC3 atomic structure
b) CC4 periodic table
c) CC5 ionic bonding
d) CC6 covalent bonding
e) CC7 types of substance
f) CC9 calculations involving masses
g) CC13 groups in the periodic table
h) CC14 rates of reaction
i) CC15 heat energy changes in chemical reactions
j) CC16 fuels
k) CC17 earth and atmospheric science

Physics paper 6 (70 minutes, 60 marks):

a) CP7 forces doing work
b) CP8 forces and their effects
c) CP9 electricity and circuits
d) CP10 magnetism and motor effect
e) CP11 electromagnetic induction
f) CP12-13 particle model and forces & matter

Week Two

Calculations in paper 5- **physics:**

1. Distance(m) ÷ time (s)= **speed (m/s)**
2. (final velocity (m/s) -initial velocity (m/s))÷time(s)= **acceleration (m/s^2)**
3. Mass (kg) x gravitational field strength (N/kg)= **weight (N)**
4. Mass (kg) x acceleration (m/s^2)= **force (N)**
5. Thinking distance + braking distance= **stopping distance**
6. Useful energy output ÷ total energy input = **efficiency**
7. 0.5 x mass (kg) x $velocity^2$ (m/s)= **kinetic energy (J)**
8. Mass (kg) x gravitational field strength (N/kg) x change in height (m)= **gravitational potential energy (J)**
9. Frequency (Hz) x wavelength (m)= **wave speed (m/s)**

Week Three

Calculations in paper 1-**biology:**

1. Eye piece lens x objective lens= **overall magnification**
2. Image size ÷ actual size= **magnification**
3. ((final mass- initial mass)÷ initial mass) x100= **percentage change in mass**
4. Amount broken down (g) ÷ time taken (min)= **rate of reaction (g/min)**
5. Mass (kg) ÷ $height^2$(m)= **Body mass index**
6. Hip (mm) ÷ waist (mm)= **hip: waist ratio**

Calculations in paper 3-**chemistry:**

1. Distance moved by spot ÷ distance moved by solvent = **Rf value**
2. Amount dissolved (g) ÷ volume of solution (dm^3) = **concentration (g/dm^3)**

Week Four

CB1 key concepts in biology:

1. There are various ways in which substances can move:

a) **diffusion** is the movement of particles from an area of **high concentration to low concentration**. It is a **passive** process

b) **osmosis** is the movement of **water** molecules from an area of **high concentration to low concentration** across a **partially permeable** membrane. It is a **passive** process

c) **active transport** is the movement of substances against the concentration gradient (from **low to high concentration**). It requires a **membrane** and **energy**

YEAR 11 CYCLE 2 COMBINED SCIENCE

Week Five

CB1 key concepts in biology:

1. **Enzymes** are **biological catalysts** which **speed up** the rate of reaction without being used up.

a) **protease** breaks **proteins** into **amino acids.**
b) **amylase** breaks **starch** into **sugars.**
c) **Lipase** breaks **lipids** into **fatty acids and glycerol.**

2. Enzymes can be affected by three conditions:

a) **temperatures:** low temperatures do not provide enough **activation energy** for reactions to occur, high temperatures **denature** enzymes.
b) **pH:** must be suitable for where enzyme is works in the body or it will **denature.**
c) **substrate concentration:** an increase in substrate concentration will increase ROR until a point when rate plateaus.

Week Six

CC3 atomic structure:

1. **Atomic structure:**

Particle	Charge	Mass	Location
Proton	+ 1	1	Nucleus
Neutron	0	1	Nucleus
Electron	- 1	1/1835	Electron shell

2. There is always the same number of protons & electrons in an atom.
3. **Atomic mass** = protons + neutrons
4. **Atomic number** = protons
5. **Mendeleev** arranged the Periodic Table in order of increasing atomic mass but this isn't true in some cases because of the masses of some of the **isotopes**.

Week Seven

CC5 and CC6 ionic and covalent bonding:

1. **Ionic bonds** are formed by the **transfer of electrons** between **metals and non-metal** atoms to form **ions** (a group of atoms with positive or negative charge).
2. **Anions** are **negative ions** and are formed by the **addition** of electrons.
3. **Cations** are **positive ions** and are formed by the **loss** of electrons.
4. **Group 1** lose 1 electron and form 1+ ions.
5. **Group 2** lose 2 electrons and form 2+ ions.
6. **Group 6** gain 2 electrons and form 2- ions.
7. **Group 7** gain 1 electron and form 1- ions.
8. **Covalent bonds** are formed when a pair of electrons is **shared** between atoms.
9. Covalent bonds form between **non-metals** and create **molecules.**

Week Eight

Physics: acceleration core practical:

1. Aim is to investigate the relationship between **force, mass and acceleration**
2. **Independent variable** is the mass of the trolley
3. **Dependent variable** is the acceleration of the trolley measured by **light gates**
4. **Control variables** are height of ramp, force on pulley
5. A piece of **card** is needed on the top o the trolley to set off the light gates
6. This investigation can be adapted to **investigate force** by changing the **masses** on the end of the **pulley**
7. You would need to **transfer masses** from the pulley to the trolley to ensure the **mass of the system** is kept the **same**

Week Nine

Physics: wave core practical:

1. Aim is to investigate the **suitability of equipment** needed to measure the **speed** of waves in a solid and a liquid.

Waves in a liquid:

a) a ripple tank is set up filled with water and a dipper attached to a motor
b) the frequency is measured by **counting** how many waves are formed in 10 seconds
c) this can be **improved** by taking a **slow motion video** and dividing the number by 10
d) the wavelength is estimated using a **ruler** on the side of the tank
e) this can be **improved** by **taking a photo** of the wave

Waves in a solid:

a) **frequency app** held near bar= frequency
b) **length** of the rod x2 = wavelength

Week Ten

Physics: refraction core practical:

1. **Refraction** is the **change in direction** of a wave due to a **change in density**
2. The ray of light shining into the glass block is called the **incident ray**
3. The ray of light travelling through the glass block is called the **refracted ray**
4. The **normal line** is drawn at **90°** to the glass block
5. The **angle of incidence** is measured between the normal line and incident ray
6. The **angle of refraction** is measured between the normal line and the refracted ray
7. When light enters a **more dense** medium it **refracts towards** the normal
8. When light enters a **less dense** medium it **refracts away** from the normal

YEAR 11 CYCLE 2 GEOGRAPHY

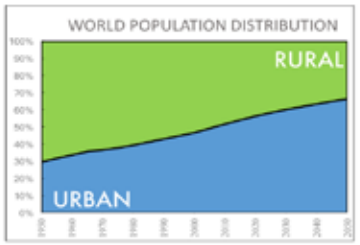
WEEK 1

Urban trends

Urbanisation: the proportion of the world's population who live in cities.

By 2030, it is expected that 60% of the world's population will live in urban areas.

The proportion of people living in towns and cities varies in different parts of the world.



In most of the world's richer countries over 60% of the population live in cities. This includes Europe, North America and Oceania. Urbanisation rates are slowing as most people already live in cities. In south and south east Asia, it is 50%. All but six countries in Africa have urban populations of more than 20%.

The largest growth in urban population by 2050 will take place in India, China and Nigeria.

A **megacity** is a city with a population of more than 10 million. In 1975, there were only four megacities. At present, there are 33 megacities. The UN predicts that by 2050 there will be 60 megacities.

WEEK 2

Why do cities grow?

Urbanisation is the result of the **natural increase** of a population (births minus deaths) plus migration.

Natural increase tends to be higher in LICs (such as Cambodia) and in some NEEs (such as India).

Rural-urban migration: the movement of people from the countryside into towns and cities.

Push factors

Farming is hard and poorly paid

Desertification and soil erosion makes farming difficult

Drought and other climatic hazards reduce crop yields

There are few doctors or hospitals and schools provide only a basic education

Rural areas are isolated due to poor roads.

Pull factors

There are more well-paid jobs

A higher standard of living

They already have friends and family there.

A range of entertainment

Public transport is better

There is a better chance of getting an education

There are better medical facilities.

WEEK 3

Importance of Lagos

Lagos in the largest city in Nigeria. Population 15 million.

It is an important centre of trade and commerce, with about 80% of Nigeria's industry is based in and around Lagos and it is now the main financial centre in West Africa.

Growth of Lagos

In 1960, the city had less than one million residents. By 1990, it was four million.

Lagos' expansion really took off during the oil boom in Nigeria in the 1970s, which drew thousands of people to the city for work. This is called rural-urban migration.

Push factors

Political unrest creates insecurity. The terrorist group, Boko Haram, is active in the north of Nigeria.

Land is degraded due to farming. Land in the Niger Delta region is polluted by the oil industry.

Another reasons for Lagos' growth Is natural increase due to the youthful population.

WEEK 4

Opportunities in Lagos

With about 10% of Nigeria's population, Lagos contributes about 30% of its GDP.

Lagos is building a new city on the coast called Eko Atlantic, destined to be the new financial hub for West Africa. It will be home to a 250,000 people and employ 150,000 more.

Unemployment is much lower than the rest of Lagos at 9.9%. About 40% of the workforce in the informal sector.

Olusosun rubbish dump sorts 3,000 tonnes of waste by hand per day with 500 workers. Without this, a lot of reusable rubbish would go to waste.

Challenges in Lagos

The lack of properly built homes and rapid rural-urban migration has forced millions to build their own homes in squatter settlements.

Makoko slum – On the edge of the lagoon, homes extend into the water on stilts. Known as the Venice of Africa. Lack basic facilities and sanitation. Around 250,000 inhabitants. Most make a living from the informal economy and fishing.

Average Lagos resident spends three hours per day in traffic. 40% of new cars in Nigeria are registered in Lagos. Air pollution rates five times higher than the limit.

WEEK 5

Improving quality of life for the urban poor

Tempohousing – Constricting affordable housing using shipping containers. Working with a Netherlands based TNC. 20% cheaper than conventional buildings and 3-5 times quicker to construct – as little as two weeks.

Eko Atlantic – A new city suburb on the shores of Victoria Island. Protected by an 8km long sea wall, the city will have its own power and water supply and an independent road network. Tonnes of sand and heavy rock were poured into the ocean to provide 10 sq km of land for shops, offices and homes. Will provide employment, engaging the population in more formal job opportunities which will increase taxes for the government.

Floating school – Meet the educational needs of Makoko. Environmentally sustainable as it would withstand the rising sea levels associated with climate change. Classroom can host lessons for 60 children at a time and it would be used as a community centre.

The original school collapsed during heavy seasonal thunderstorms in 2016. It was a symbol of bottom-up development.

YEAR 11 CYCLE 2 GEOGRAPHY

WEEK 6

Importance of London

Six international airports such as Gatwick and Heathrow.

529 foreign companies are listed in London.

London has a modern day importance as a world city.

London is a centre for tourism – in 2015, the city welcomed 17.4 million international visitors.

London generates approximately 22% of the UK's GDP.

392,400 people are employed in City of London.

Growth of London

In 1801, there were one million people in London. Today, there are approximately 8.7 million. It is expected to reach 10 million by 2030.

Most diverse city in the UK – 36.7% of the population were born abroad. The largest numbers have come from India, Nigeria and Jamaica, as well as Eastern Europe.

Young people in their 20s to 30s move to London for work.

WEEK 7

Opportunities in London

London is one of the greenest cities in the world with 47% green space.

Urban greening is about how we increase and protect the green spaces we have in cities.

There are 30,000 allotments in London and 8.1 million trees!

Huge number of cultural attractions such as the British Museum and Buckingham Palace.

Events to celebrate multiculturalism such as the Notting Hill Carnival.

Challenges in London

Social deprivation is a major problem: 2 million people live in poverty. Boroughs like Kensington have a much higher life expectancy than Newham.

There is a housing shortage, with London's population growing by 100,000 people every year, but only 20,000 new homes being built.

Brownfield sites: land that has been used, abandoned and now awaits some new use. Commonly in inner cities areas e.g. old factories.

Green belt: land around cities on which there are strict planning controls to prevent urban development. Established in 1947.

WEEK 8

Urban regeneration: Olympic Park

Stratford lies in the Lower Lea Valley in the borough of Newham.

Before the regeneration

Unemployment was 7.8% in Newham compared to 4.5% in the rest of London.

Lower GCSE results and household incomes (£29,000 compared to £37,000 per year in the rest of London.

Lack of infrastructure. There was plenty of derelict, unused, overgrown land that used to be industrial sites.

The land was badly contaminated by chemicals.

There were 250 businesses on the site, employing 5,000 workers.

After the regeneration

The Athlete's Village was renamed East Village and provides 2,800 homes for local people.

The Olympic stadium is now the new home of West Ham United.

With over 100 hectares of open space, Queen Elizabeth Olympic Park is the largest new park in London for over a century.

The Aquatics Centre and Velopark are open to schools and the public.

A new commercial centre employs 25,000 people and Westfield employs 10,000.

WEEK 9

Features of sustainable living

Social: people have a say in how the city is run; people encouraged to walk; enough doctors and schools

Economic: Good quality, affordable homes are built; well-paid jobs.

Environmental: Rivers kept clear of waste/pollution; solar and wind energy to create electricity; lots of green, open space.

Sustainable transport strategies in London

In 2014, roughly 75 million passengers used the underground trains and buses in London each week.

Boris Bikes – self hired in public places in London for as little as £2 for short journeys, reducing traffic congestion. Found at 750 docking stations with 11,500 bikes in total.

Congestion charge – A fee charged to any vehicle travelling in central London between 7am and 6pm Mon-Fri. It has reduced journey times by 14%.

Cycle Superhighways – The 3-mile North-South route cost £160 million. Reduces pressure on the road, bus and rail and reduces serious injuries. Cost businesses £5.3 million a year with a challenge to meet delivery times. 40 miles of cycleways in total with 730,000 journeys being made by bike per day.

ULEZ (Ulta Low Emission Zone) – high polluting cars have to pay £12.50 to enter central London.

WEEK 10

Freiberg: a sustainable city

In 1970, the German city of Freiberg set a goal of urban sustainability. 220,000 inhabitants.

Social sustainability

People take part in decision making and there is a need to provide enough affordable homes. Local people can invest in renewable energy resources. In one district, residents have invested over £5 million in windmills, solar energy, a hydro-electric plant and energy conservation.

Vauban, the inner city district, houses 5500 people in low energy buildings.

Economic sustainability

People come to attend conferences on sustainability, providing jobs for local people. Jobs also created in the research and manufacture of solar technology. More than 10,000 people employed in 1500 environmental businesses.

Environmental sustainability

350 community collection points for recycling

Energy provided for 28,000 homes from burning waste

More than 88% of packaging waste is recycled.

44,000 trees have been planted

The city plans to be 100% powered by renewable energy by 2050.

YEAR 11 CYCLE 2 HISTORY

Year 11 History Knowledge Organiser– Cycle 2 – Superpower Relations and the Cold War – Page 1

1 – What was the Cold War?

USSR	A group of countries led by Russia, AKA the Soviet Union
Grand Alliance	Wartime alliance between USA, Britain and USSR
Sphere of Influence	The region over which a country has influence/control
Demilitarisation	The removal of army and other military from a region
Satellite states	Countries controlled by a larger, more powerful nation
Containment	The US plan to prevent the spread of Communism
Iron Curtain	The name given to the 'border' of Western/Eastern Europe
Doctrine	A key message that you are committed to enforcing
Comecon	Organisation to increase Soviet economic control in Europe
Cominform	Organisation encouraging cooperation between communist countries
Blockade	Preventing access to a location or region

2- What was the Cold War? 2

Bizonia	The merging of the German regions controlled by the US and Britain
Airlift	Bringing needed goods into a region by air
NATO	Military alliance of America and its allies
Warsaw Pact	Military alliance of the USSR and its allies
Arms race	Competitive military spending between countries
ICBM	Missiles than can be fired huge distances – across continents
H-Bomb	Hydrogen bomb – a very powerful and destructive weapon
B-52	The type of bomber aircraft used by the USA
Sputnik	A Soviet satellite, the first man made satellite in space
Destalinisation	Khrushchev's policy of moving away from Stalin's methods
Secret Police	Organisations that enforce the law but are not accountable or public
Guerrilla	A type of fighting that relies on ambushes or unconventional warfare

3 – The arms race

1945-The USA tests its first atomic bomb. It is used twice, against Japan. Joseph Stalin demands the USSR develop its own nuclear capability, and triples the pay of scientists working on the project.
1949-The USSR carries out its first successful nuclear test. In the US, Truman massively increases defence spending and work commences on a new, more powerful 'hydrogen bomb' (H-bomb).
1953-The US and USSR both conduct their first successful H-Bomb tests. Both sides are now in possession of powerful nuclear weapons.
1954-The US explodes its largest ever H-Bomb – the equivalent of 15 million tons of TNT, and capable of wiping out Moscow, the Soviet capital. The USSR had similar capability to wipe out American cities.
1957-The Soviet Union launches the first satellite into space. The US fears that this could eventually lead to a military threat, and diverts resources to its own space program.
1962-The Cuban Missile Crisis – the US discovers Soviet nuclear missiles in Cuba, 90 miles off the coast of Florida. The USA has 63 inter-continental missiles, 21 nuclear submarines, 24 aircraft carriers and 96 missiles capable of being launched from submarines. The USSR had more than 50 inter-continental missiles, and no aircraft carriers, no sub-launched missiles and only 2 nuclear submarines. The USA had started to pull ahead in the arms race, but both sides possessed enough nuclear weapons to wipe the other side out many times over.

4 – Capitalism vs Communism

Capitalism

Politics: Favours democracy – people choose their leaders from several different parties.
Economy: Businesses are privately owned, and there are opportunities to become very wealthy for some people. If you work hard and are good at your job, you will be promoted and earn more money – this gives people an incentive to work.
Beliefs: Freedom is good and is necessary for a successful society. Some people will be wealthier than others but mostly this should reflect their ability, ingenuity and hard work. It would be unfair for everyone to be equal if some work harder than others. Capitalism should be the system used by the rest of the world because it encourages prosperity and development.
Problems: Capitalism leads to inequality – some people become very rich, but others become very poor. Power is concentrated in the hands of a minority of rich and powerful individuals, whilst the poor are vulnerable to being exploited.

Communism

Politics: Only one party allowed, the Communist Party, which represents the people. There are no elections and you cannot change your government.
Economy: Businesses are all owned publicly – by the government. All profits and products are shared amongst the people. Nobody becomes hugely wealthy, but nobody is much poorer than anyone else.
Beliefs: Freedoms such as a free media and freedom to hold different political views is harmful to the unity and success of the country. Everyone should be equal, and it is the government's job to ensure that this happens, as capitalism will exploit the poor and the workers to benefit the elite. Communism should be the system used by the rest of the world, and the USSR should encourage revolutions in other countries to ensure this happens.
Problems: Communism leads to a lack of productivity – why work hard with no opportunity for financial reward? It also stifles creativity – people are less likely to have the freedom and incentive to develop ideas if they won't personally benefit from them. Lack of democracy leads to the suppression of other basic rights.

5 – What was the Cold War? 3

Defection-Leaving one country to go to its enemy
Refugee-A person fleeing crisis in their home country
Ultimatum-A final choice with two serious options
Checkpoint-A guarded border post on the Berlin Wall
Diplomat-A representative from one country in another
Exile-A person forced to leave a country to live in another
CIA-The Central Intelligence Agency – US spy network
Bay of Pigs-A bay in Cuba that was the focus of a failed invasion
Hawks and Doves-People who favoured aggressive or diplomatic US response
Brinkmanship-Going right to the edge to get what you want
Hotline-A telephone connection to allow instant communication
Treaty-An agreement between countries
Detente-The thaw in relations that led to progress between US/USSR
Reforms-Changes to the way the country is run
Censorship-Limiting the information that people have access to
Resistance-Refusal to cooperate
Brezhnev Doctrine-USSR plan to invade countries which threatened E. Europe
Vietnam War-A disastrous conflict the US was involved in in the 1960s/70s

YEAR 11 CYCLE 2 HISTORY

Year 11 History Knowledge Organiser– Cycle 2 – Superpower Relations and the Cold War – Page 2

6 – Crises in Berlin

Berlin Crisis of 1948

The Berlin crisis of 1948 was caused by Stalin, who was resentful of the US and Britain having free access through East Germany to get to their sectors of Berlin. He thought they were spying on the Communist country and were spreading pro-capitalist messages. He closed off all the roads and railways, and attempted to force the US and Britain to give up their claim to West Berlin.
Instead, the US organised airlifts of food and fuel to defeat the blockade and save the people of West Berlin. Stalin eventually had to back down.
This crisis was significant in the wider Cold War because it showed that the USA was prepared to back up its words in the Truman Doctrine with actions. It was also significant because it led to the creation of NATO.

Berlin Crisis of 1961

The Berlin Crisis of 1961 was caused by Khrushchev, who was resentful of highly qualified professionals leaving East Berlin and East Germany. There was no border between the East and West zones, meaning that people frequently travelled to the West and then on to capitalist countries that they otherwise were not allowed to go to. Highly qualified people knew they could earn lots more money in the capitalist West, so the 'brain drain' was a big concern for Khrushchev. He attempted to force the US to prevent this migration, but the US refused, so Khrushchev authorised the East Germans to build a wall around the entirety of West Berlin. This meant no East Germans could enter or they would be shot. Migration stopped, but the city was cut in two. The wall stood for 28 years.

7 – Three Cold War Crises

The Berlin Crisis 1961

Key individuals: Eisenhower and Kennedy (USA) Khrushchev (USSR)
Causes: - 'Brain drain' refugee crisis - hundreds of thousands of highly qualified workers leaving East Germany for the West
Key events: Berlin ultimatum 1958, Vienna Summit 1961, Construction of the Berlin Wall 1961
Outcomes: West Berlin isolated and migration ended, Heightened tensions between USA and USSR

Cuban Missile Crisis 1962

Key individuals: Kennedy (USA), Khrushchev (USSR), Castro (Cuba)
Causes: USSR placed missiles on Cuba in response to US Jupiter missiles in Turkey.
Key events: Communist revolution led by Castro 1959, Bay of Pigs invasion 1961, Missiles discovered by USA, Kennedy ordered removal + blockaded Cuba
Outcomes: Increased rivalry between USA and USSR, Hotline installed for instant communication, Various treaties between 1963 and 1968

Czechoslovakia 1968

Key individuals: Brezhnev (USSR), Dubcek (Czechoslovakia), Johnson (USA)
Causes: Czechs demanded greater freedoms and economic reform. Dubcek appointed leader
Key events: Dubcek announced Prague Spring reforms Opposition to Communism increase, USSR invades and arrests Dubcek, reversing reforms
Outcomes: Brezhnev Doctrine, Other communist countries condemned USSR, US condemnation but no intervention

8 – What was the Cold War? 4

Detente-A period of improved relations between US and USSR
Linkage-Nixon's plan to 'link' benefits to positive Soviet actions
Bilateral-Agreements that involve cooperation between two parties
SALT I-A plan to limit production of new nuclear weapons
ABM-Anti-Ballistic Missiles – reduced by the SALT Treaty
MIRV-Weapons that contained several targetable warheads
Disarmament-Reducing or completely destroying supplies of weapons
Apollo-Soyuz-A US-Soviet meeting in space to show their cooperation
Helsinki Agreements-Agreements over issues like security and human rights
Human Rights-Basic freedoms that are not respected in some countries
Mujahideen-An Afghan resistance force that was armed by the US
Jihad-A Muslim 'holy war' that was declared against the USSR
Fundamentalism-An extreme and dangerous version of a religion
Embassy-A building that represents one country's people in another.

9 – What was the Cold War 5

Carter Doctrine-A US vow to go to war if their interests in Middle East threatened
Boycott-A refusal to use certain services or to attend an event
Second Cold War-Reagan's escalation of the Cold War after the failure of detente
NUTS-Targeting nuclear weapons at USSR warheads, not cities
START-Talks focused on reducing total nuclear weapons on both sides
SDI-'Star Wars' – high tech laser guided missile protection system
New Thinking-A series of reforms proposed by Gorbachev to modernise USSR
Perestroika-'Restructuring' – economic changes to the USSR and communism
Glasnost-'Openness' – greater freedoms within the USSR and E Europe
Dissidents-Political opponents to a regime that often experience persecution
Uskoreniye-Acceleration – a Soviet plan to boost and modernise the economy
INF Treaty-First successful agreement to reduce nuclear weapons
Sinatra Doctrine-Nickname of plan for E European countries to do things 'their way'
Reunification-Germany being reunited into a single country after being divided

10 – The End of the Cold War

East Germany
Oct-Nov 1989: Millions protest on the streets of major cities
Nov 1989: Berlin Wall is opened
Oct 1990: German reunification
Poland
1988: Mass strikes across country
1989: Solidarity party wins elections and first non-Communist leader in E Europe is elected.
Hungary
1988: Becomes multi-party state
1989: Border opens with democratic Austria
1990: anti-Communist alliance wins elections
Czechoslovakia
Nov 1989: Mass protests against Communism lead to resignation of government
Dec 1989: Non-communist president appointed
1990: Elections won by non-Communist alliance
Romania
25 Dec 1989: Communist dictator Ceausescu executed
1990: Democratic elections held, won by party dominated by ex-communists
Bulgaria
1990: Democratic elections held, won by renamed Communist Party

INTRODUCTION OF GRAMMAR

	NAME	DEFINITION	EXAMPLE
Types of Verbs	**Verb**	A verb expresses an action, state or a condition in a sentence. These can be either verbs of doing or being.	The boy **ran** to the park. I **was** here long ago.
	Auxiliary Verbs	Auxiliary verbs help to form the various tenses, moods, and voices of other verbs. Auxiliary verbs: a form of be, do, have or a modal, used with a main verb to form different tenses.	She **is** reading a book. We **were** going to the beach. I **had** to eat the cake.
	Modal Verbs	These combine with other verbs to express necessity, possibility, and intention.	You **should** know what modal verbs are. He **might** not know the milk has gone bad. I **ought** to stop eating so much cake.
	Participles	They are words formed from verbs and look like verbs, but they are used as adjectives (i.e. they describe a noun). **Past participles** end in 'ed'; **present participles** end in 'ing'. These will always be non-finite.	In the house, there was a **screaming** witch. The worried man kept eating the cake. The **dying** woman reached for the hand of her **weeping** son.
	Gerunds	A gerund is a verb that is acting as noun in a sentence. It's made from a verb by adding '-ing.' Infinitives are the 'to' form of the verb. E.g. to ski. Gerunds are the 'ing' form of the verb which acts as a noun.	Skiing is fun. I enjoy skiing.
Finite or Non-finite	**Finite or Non-finite Verbs**	All verbs - regardless of their type - are either finite or non-finite when they are used. Finite verbs can only be used in some circumstances - if you change tense, the number or the person it will have to change. Whereas, a non-finite verb can be used in ANY number of circumstances. They won't change even if you alter the tense, the number or the person.	Ben sat on the bench, looking at the ducks. *First, identify the verbs…* In the park, Ben **sat** on the bench, **looking** at the ducks. *Then, change the tense…* In the park, Ben **sits** on the bench, **looking** at the ducks. Sat is finite - It had to change. Looking is non-finite - It didn't need to change
Types/parts of sentence	**Main Clause/ Simple Sentance**	A main clause/simple sentence has **one** - and only one - finite verb and a subject. (It can have as many non-finite verbs as you like.) A **subject** is the thing doing the *verb*.	The **crocodile** *ate* my friend. In the desert, **scorpions** *hide*. The **car crash** *was* unexpected and tragic.
	Object	A main clause *can* have an object, but it doesn't need one. The object is the thing that receives the *verb* - the subject affects it in some way.	The **girl** *kicked* the ball. The **man** *ate* all of the cake.
	Imperative Sentances	Imperative verbs act as an instruction or command. It *is* a sentence, but it only has a finite verb as the subject is implied. This means it is obvious who the sentence is referring to so that it doesn't need to be stated.	Sit down. Hand me that cake! Tell me when the pain started.
	Compound Sentence	Two main clauses linked together by a co-ordinating conjunction (FANBOYS). For/And/Nor/But/Or/Yet/So	The chips were delicious, but the fish was foul. I went to the shops to get some cake, so I could eat it for dessert. The man went dancing and the woman played Xbox.
	Complex Sentance	Made up of two parts: a main clause and one or more **subordinate clause.** A *subordinating conjunction* always comes at the start of the subordinate clause.	The boy sat down **after he heard the news.** Nobody saw the alien **because he was invisible.**

Types/parts of sentence	**Complex Sentence - Subordinate Fronted**	As above, but the subordinate clause comes before the main clause. It needs to be separated by a comma.	After he heard the news, **the boy sat down.** Because he was invisible, **nobody saw the alien.**
	Embedded Clause/Phrase	**Clauses** and phrases can be embedded in both main and subordinate clauses. They are usually embedded between the subject and the finite verb (of either the main or the subordinate clause). A comma is needed both before and after the embedded ingredient	Monkeys, that were jumping and calling, surrounded the car. **The nun, with whom I recently had a falling out with,** prayed to God.
	Fragments	A **fragment** is a word, that is punctuated as if it is a sentence. It is not a sentence because it doesn't have a subject and a finite verb. Fragments add emphasis, create a colloquial style and create realistic speech.	This is the worse day ever. **Ever.** She told me that if I didn't do my homework, she'd put me in detention. **Well, whatever.** "Where are you going?" **"Home."**
Phrases	**Phrases**	Whereas a clause has **BOTH** a subject and a finite verb, a phrase does not have **BOT**H a subject and a finite verb. A group of two or more words which usually do not contain a finite verb and which can act as a noun, verb, adverb, adjective or preposition.	This is a clause: after the **school day** ended. This is a phrase: after school.
	Prepositional Time Phrases	Phrases that indicated **when** something happens. A comma is needed to separate a (prepositional) time phrase from the rest of the sentence when it is before the main clause.	Yesterday, it was snowing heavily. It was snowing heavily yesterday.
	Prepositional Place Phrases	Phrases that indicated **where** something happens. A comma is needed to separate a (prepositional) place phrase from the rest of the sentence when it is before the main clause.	Under the hill, Bilbo Baggins lived. Bilbo Baggins lived under the hill.
	Present Participle Phrases (ING)	Begins with an ING present participle and it does not have a subject or a finite verb. They are separated from the main clause with a comma - BOTH when they are before the main clause AND when they are after it. The phrase must refer to the subject of the clause.	**Thinking about her hot dinner,** the woman shifted on the cold seat. **Watching their daughters play football,** the two mothers shouted support.
	Past Participle Phrases (ED)	As above, but begins with an ED past participle.	**Scared he might not make it,** the boy ran to the toilet. The young couple hugged, **thrilled at the news of their pregnancy.**
	Adverbs	An adverb can be placed at the beginning, middle and end of a sentence. Adverbs are used to qualify or modify the verb. At the beginning it needs to be separated by a comma; in the middle of the **subject and finite verb** it needs be embedded between two commas; at the end it does not need to be separated.	Suddenly, the building exploded. The building exploded suddenly. The building, suddenly, exploded.
Advanced Punctuation	**Semi-colon**	Semi colons link two main clauses to form one sentence. They need to be related by topic or action. It does not link a sentence to a subordinate clause or phrase. You do not use a capital letter after a semi-colon.	This is how you use a semicolon; it is easy when you know how. My mother is from Italy; my father is from Poland.
	Colon	Colons introduce information, expanding or embellishing a point that has already been made. The information on each side is essentially the same but after the colon, there's usually more detail. You can imagine the colon being a stand in for the phrase 'let me tell you about it'.	It is very cold outside: there are icicles handing from my front door and the post man arrived by sled! I am allergic to two things: eggs and honey.
	Dashes	The dash is a punctuation mark used for emphasis and effect: it can be used to replace a colon, a semicolon, an ellipsis, brackets or a comma.	The dash is a versatile tool - it can replace a semi-colon or colon. You might also want to know - if you're *really* interested - that it can replace commas too.

Notes

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