

# Science Learning Journey

## Year 7



Move on to Year 8

Summer Holidays

Next Level

Year 7 Top Tips	
<b>Tip 1</b>	Find out the names and classrooms of all your teachers
<b>Tip 2</b>	Pack your bag the night before using your timetable
<b>Tip 3</b>	Be prepared for tests by marking sections in your book you are unsure of and ask your teacher for help

### Space

- The night sky
- The solar system
- The Earth
- The Moon



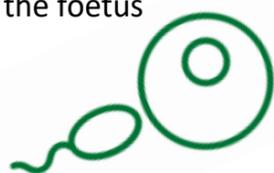
Interim  
w/c 23/6

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### Reproduction

- Adolescence
- Reproductive
- Fertilisation and implantation
- Development of the foetus
- Menstrual cycle
- Flowers
- Seeds
- Germination



TSAT  
w/c 19/5

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### Acids

- Acids, alkalis and hazards
- Indicators
- pH
- Neutralisation
- Making salts
- Naming salts



### Reactants

- Reactions
- Equations
- Burning fuels
- Thermal decomposition
- Conservation of mass
- Endo/exothermic



Interim  
w/c 3/3

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### Light

- Light
- Reflection
- Refraction
- Colour
- The eye
- The camera



### Elements

- Elements
- Atoms
- Compounds
- Chemical Formulae



### Particles

- Particle model
- States of matter
- Boiling
- Diffusion
- Gas Pressure



### Structure and Function

- Skeleton
- Levels of organisation
- Joints
- Muscles
- Breathing

Interim  
w/c 9/12

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### Sound

- Waves
- Sound and energy
- Loudness and pitch
- Detecting sound
- Damaging hearing
- Echoes and ultrasound



TSAT  
w/c 13/1

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Interim  
w/c 7/10

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### Forces

- Stretching and squashing
- Drag forces
- Contact Vs. non-contact
- Mass and weight
- Balanced Vs. unbalanced



### Cells

- Animal and plant cells
- Specialised cells
- Movement of substances
- Unicellular and multicellular



### Introduction to Science

- Lab rules
- Safe working
- Data collection
- Graph drawing



Year 6

### Skills taught in Science

- 1) Planning an investigation
- 2) Practical skills
- 3) Collecting and recording data
- 4) Presenting data
- 5) Making conclusions and evaluations



### Pride in presentation

- Your book is a valuable resource when revising
- 1) Always write the title and date and underline both with a ruler
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  - 4) Complete all tasks
  - 5) Stick in worksheets

# Science Learning Journey

## Year 8



Move on to Year 9

Summer Holidays

Next Level



Year 8 Survival Top Tips	
<b>Tip 1</b>	Establish a routine for homework and revision. Science is set every Wednesday
<b>Tip 2</b>	Get organized. Pack your bag the night before and make a list of everything you need for each subject
<b>Tip 3</b>	Review the topics you have completed. Use BBC bitesize/Seneca or similar sites to check your understanding

### The Earth

- Atmosphere
- Structure of the Earth
- Types of Rock
- Rock Cycle
- Carbon and climate



Interim  
w/c 9/6

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Interim  
w/c 24/3



### Inheritance

- Variation
- Inheritance
- Natural Selection
- Extinction

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TSAT  
w/c 5/5

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### Motion and Pressure

- Speed
- Graphs
- Pressure in gases, liquids and solids
- Turning forces



### Metals and Acids

- Elements
- Atoms
- Compounds
- Chemical Formulae



### Ecosystems and Adaptations

- Food chains
- Competition
- Adaptations



Interim  
w/c 20/1

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### Energy

- Fuels
- Conduction
- Convection
- Radiation
- Power
- Work and machines



### Periodic table

- Metals and non-metals
- Groups and periods
- Groups 1, 7 and 0
- Oxides



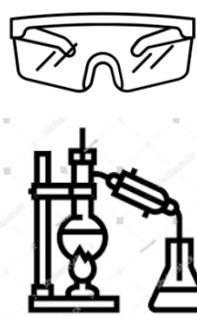
### Biological Processes

- Photosynthesis
- Aerobic respiration
- Anaerobic respiration



### Separation Techniques

- Mixtures
- Solutions
- Filtration
- Evaporation
- Distillation
- Chromatography



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TSAT  
w/c 11/11



### Electricity and Magnetism

- Circuits
- Resistance
- Magnets
- Electromagnets

Interim  
w/c 16/9

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### Health

- Diet
- Food tests
- Digestive system
- Drugs, alcohol and smoking



Year 7

### Skills taught in Science

- 1) Planning an investigation
- 2) Practical skills
- 3) Collecting and recording data
- 4) Presenting data
- 5) Making conclusions and evaluations



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# Science Learning Journey

## Year 9

Move on to Year 10

Summer Holidays

Next Level



TSAT  
w/c 2/6

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Year 9 Survival Top Tips	
<b>Tip 1</b>	Keep all notes and full exercise books in a safe place.
<b>Tip 2</b>	Start to build good study habits. Set a time each week to review your learning and make notes on areas you find difficult.
<b>Tip 3</b>	Start learning the keyword definitions by making flashcards
<b>Tip 4</b>	Complete all homework on time

### Newton's Laws

- Rearranging equations
- Terminal speed
- Momentum
- Work done and power

### Global Issues

- Forming the atmosphere
- Pollution
- Climate change
- Water for drinking

### Pressure in Action

- Distance/time graphs
- Velocity/time graphs
- Equations of motion
- Kinetic energy
- Forces and interactions
- Free body force diagrams
- Newton's first and second laws
- Resultant forces at a right angle

Block 4  
3 Weeks of Each Subject

### Cell Transport and Making New Cells

- Active transport
- Mitosis
- Cell differentiation
- Stem cells

### Separating Techniques II & Chemical Reactions

- Chromatography
- Rf values
- Purification
- Detecting gases
- pH scale
- Neutralisation
- Acids and metals
- Metals and carbonates

### Ecosystem Processes and Photosynthesis

- Photosynthesis
- Photosynthesis experiments
- Limiting factors
- Pondweed practical
- Diffusion
- Osmosis

Block 3  
3 Weeks of Each Subject

### What Happens in Cells?

- Transcription and translation
- Enzymes
- Food groups
- Respiration
- Fermentation
- Photosynthesis

### Separating Techniques I

- Development of the Periodic Table
- Relative formula mass
- Empirical formula
- Pure and impure substances
- Filtration
- Crystallisation
- Distillation

### Pressure in Action

- Pressure and temperature
- Pressure and volume
- Pressure and atmosphere
- Liquid pressure
- Floating and sinking
- Speed, distance and time
- Vectors and scalars
- Acceleration

Block 2  
3 Weeks of Each Subject

TSAT  
w/c 18/11

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### Particle Model, States of Matter and Internal Energy

- History of the atom
- Density
- Energy and temperature
- Specific heat capacity
- Specific latent heat

### Particle Model & Atomic Structure

- Particles
- Chemical and physical changes
- Limitations of the particle model
- Atomic structures
- Isotopes
- Metals and non-metals
- Electronic structures
- Forming ions

### Cell Structure

- Plant and animal cells
- Bacterial cells
- Light and electron microscopes
- DNA structure
- DNA extraction

Block 1  
3 Weeks of Each Subject

Year 8

### Skills taught in Science

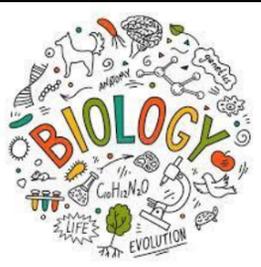
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# Biology Learning Journey

## Year 10

Interim  
w/c 1/6

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Move on to Year 11

Summer Holidays

Next Level



### Year 10 Survival Top Tips

<b>Tip 1</b>	Start to make sets of notes after each topic, summarizing the topic
<b>Tip 2</b>	Create a set of vocabulary flash cards for all topics. Go through these weekly
<b>Tip 3</b>	Complete all homework on time and ask your teacher for help on any areas you are unsure of
<b>Tip 4</b>	Use revision sites e.g. BBC bitesize/Seneca to revisit areas you find more difficult



### 6 Inheritance

- Variation
- Reproduction
- Meiosis
- Genetic crosses
- Mutations
- Mendel



TSAT  
w/c 14/4

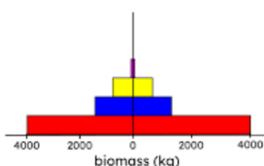
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### 5 Ecosystems

- Biotic and abiotic factors
- Competition and interdependence
- Pyramids
- Nutrient cycling
- Decomposers

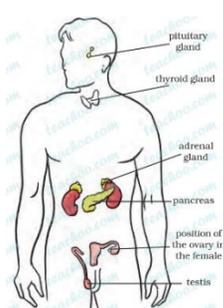
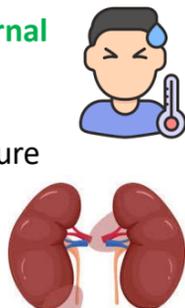


Interim  
w/c 10/3

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### 3 Maintaining Internal Environments

- Homeostasis
- Body temperature
- Blood sugar
- Water balance
- The Kidney



### 4 The endocrine system

- Hormones
- Menstrual cycle
- Contraception
- IVF
- Plant hormones



Interim  
w/c 2/12

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### 2 Challenges of Size

- Exchange and transport
- Heart and circulation
- Transport in plants
- Transpiration



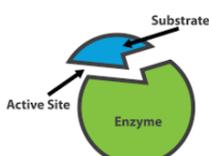
TSAT  
w/c 16/10

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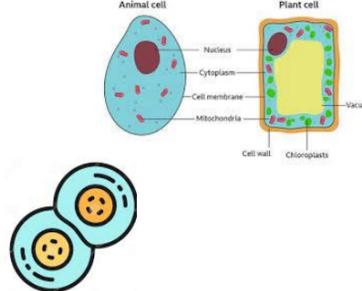
### 1 The Nervous System

- Nervous system
- Reflexes
- The Eye
- The Brain



### Over Y10 we will review the topics from Y9

- Cell structures
- Microscopy
- DNA and Enzymes
- Photosynthesis
- Respiration
- Cell transport
- Making new cells



Year 9

### Skills taught in Science

- 1) Planning an investigation
- 2) Practical skills
- 3) Collecting and recording data
- 4) Presenting data
- 5) Making conclusions and evaluations



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# Chemistry Learning Journey

## Year 10

Year 10 Survival Top Tips	
<b>Tip 1</b>	Start to make sets of notes after each topic, summarizing the topic
<b>Tip 2</b>	Create a set of vocabulary flash cards for all topics. Go through these weekly
<b>Tip 3</b>	Complete all homework on time and ask your teacher for help on any areas you are unsure of
<b>Tip 4</b>	Use revision sites e.g. BBC bitesize/Seneca to revisit areas you find more difficult

Interim  
w/c 1/6

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Move on to Year 11

Summer Holidays

Next Level



### 7 Improving products and processes

- Fertilisers
- Extracting metals
- Alloys
- Corrosion
- Different materials
- Recycling



TSAT  
w/c 14/4

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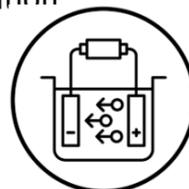
### 6 Predicting chemical reactions

- Group 1 trends
- Group 7 trends
- Group 0 trends
- Transition metals
- Reactivity series
- Displacement reactions



### 5 Electrolysis

- Electrolysis of molten
- Electrolysis of solution
- Electroplating

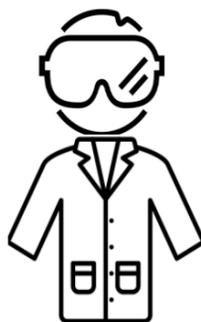


Interim  
w/c 10/3

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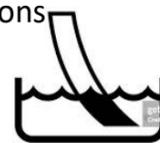
### 3 Energetics

- Exothermic and endothermic
- Reaction profiles
- Bond energy calculations



### 4 Chemical reactions

- Redox reactions
- Half equations
- Hydrogen ions
- pH



Interim  
w/c 2/12

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### 2 Introduction to chemical reactions

- Balancing equations
- Ionic equations
- Conservation of mass
- State symbols
- Moles
- Mole calculations



TSAT  
w/c 16/10

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### 1 Bonding

- Electron configuration
- Ions
- Covalent bonding
- Ionic bonding
- Metallic bonding
- Polymers
- Allotropes



### Over Y10 we will review the topics from Y9

- Particle model
- Atomic model
- Separating techniques
- Chemical reactions
- Global issues



Year 9

### Skills taught in Science

- 1) Planning an investigation
- 2) Practical skills
- 3) Collecting and recording data
- 4) Presenting data
- 5) Making conclusions and evaluations



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# Physics Learning Journey

## Year 10

Interim w/c 1/6

Move on to Year 11

Summer Holidays

Next Level



Year 10 Survival Top Tips	
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<b>Tip 2</b>	Create a set of vocabulary flash cards for all topics. Go through these weekly
<b>Tip 3</b>	Complete all homework on time and ask your teacher for help on any areas you are unsure of
<b>Tip 4</b>	Use revision sites e.g. BBC bitesize/Seneca to revisit areas you find more difficult

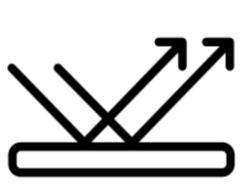


### 6 Radiation

- Atoms and isotopes
- Alpha
- Beta
- Gamma
- Nuclear equations
- Half-life
- Fission and Fusion

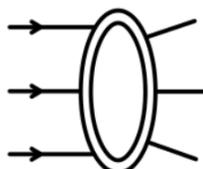
$\alpha$   $\beta$   
 $\gamma$

TSAT w/c 14/4



### 5 Wave interaction

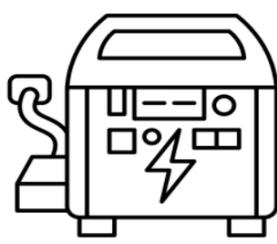
- Refraction
- Reflection
- Lenses
- Light and colour



Interim w/c 10/3

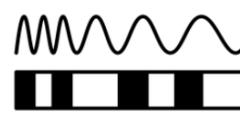
### 3 Uses of magnetism

- Currents and forces
- Motors
- Electromagnetic induction
- Generators
- Transformers
- Microphones and loudspeakers



### 4 The electromagnetic spectrum

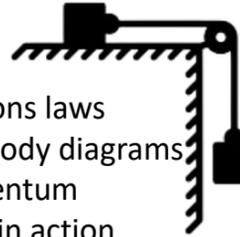
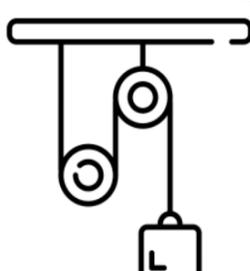
- Electromagnetic waves
- Uses and dangers of EM radiation
- Imaging with EM



Interim w/c 2/12

### 2 Forces

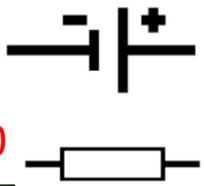
- Newtons laws
- Free body diagrams
- Momentum
- Force in action



TSAT w/c 16/10

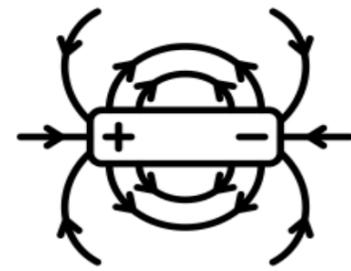
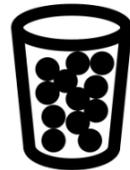
### 1 Simple circuits

- Potential difference
- Series circuits
- Parallel circuits
- Resistance
- LDRs and thermistors
- Sensing circuits



### Over Y10 we will review the topics from Y9

- Matter
- Motion
- Static electricity
- Magnets and magnetic fields
- Wave behavior



Year 9

### Skills taught in Science

- 1) Planning an investigation
- 2) Practical skills
- 3) Collecting and recording data
- 4) Presenting data
- 5) Making conclusions and evaluations



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# Chemistry Learning Journey

## Year 11

Interim  
w/c 14/4

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Paper 1  
19<sup>th</sup> May

GCSE results

Summer Holidays

KS5 Study and training

Paper 2  
13<sup>th</sup> June

TSAT  
w/c 24/2

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### 5 Global challenges

- Atmosphere
- Pollution
- Climate change
- Potable water

### 4 Organic chemistry

- Alkanes
- Alkenes
- Carboxylic acid
- Alcohol
- Fractional distillation
- Cracking
- Polymers

Interim  
w/c 20/1

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Interim  
w/c 9/12

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### 2 Controlling reactions

- Rates of reaction
- Effect of temperature, concentration, pressure, particle size and catalyst on rate



TSAT  
w/c 7/10

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### 1 Monitoring chemical reactions

- Theoretical yield
- Percentage yield and atom economy
- Gas calculations
- Titrations



Year 10

### Year 11 Survival Top Tips

- |              |  |
|--------------|--|
| <b>Tip 1</b> | Start your revision now  |
| <b>Tip 2</b> | Make a revision timetable and stick to it  |
| <b>Tip 3</b> | Start with the sections you are least confident in   |
| <b>Tip 4</b> | Use active revision techniques such as making notes, flashcards and mind maps.                     |
| <b>Tip 5</b> | Do as many past paper questions as you can from ALL exam boards. You can find these on OCR website |

### 3 Equilibria

- Dynamic equilibrium
- Position of equilibrium
- Choosing the correct conditions

The exam board is OCR Gateway - You have already completed

C1: Particles, Atomic structure  
 C2: Separating techniques, Bonding, Properties  
 C3: Introduction to chemical reactions, Energetics, Chemical equations and pH, Electrolysis  
 C4: Predicting trends in the periodic table  
 C6: Improving processes and products

Review these topic areas using



BBC bitesize

Seneca learning

Kerboodle

Exercise book

### Skills taught in Science

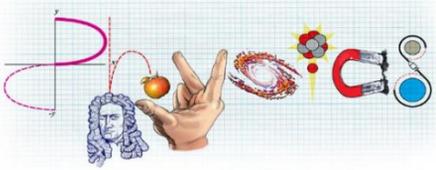
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# Physics Learning Journey Year 11

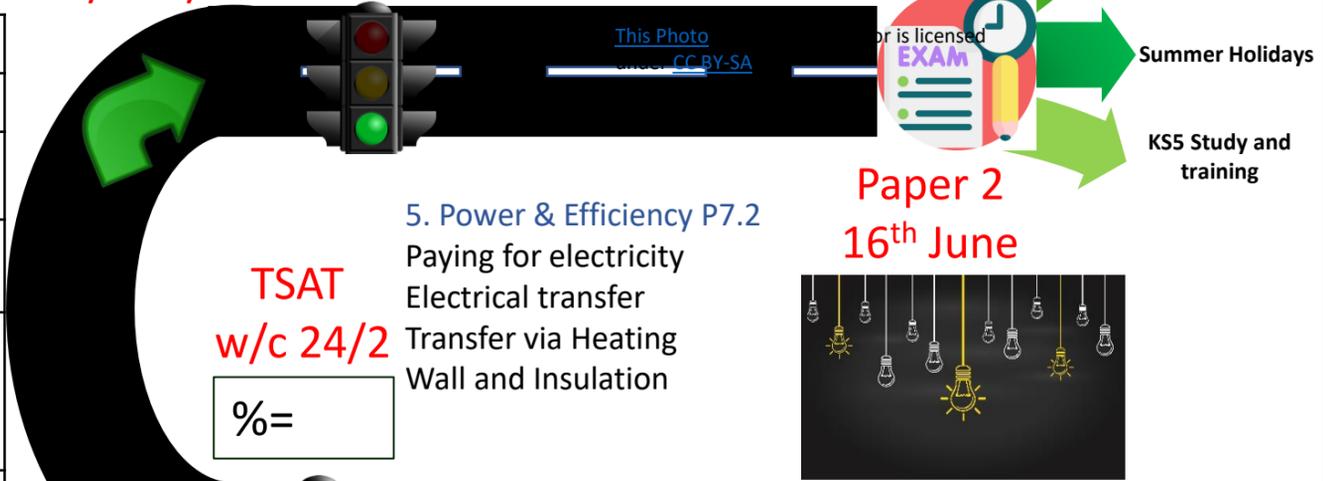


Interim  
w/c 14/4 %=

Paper 1  
22<sup>nd</sup> May

GCSE results

Year 11 Survival Top Tips	
<b>Tip 1</b>	Start your revision now
<b>Tip 2</b>	Make a revision timetable and stick to it
<b>Tip 3</b>	Start with the sections you are least confident in
<b>Tip 4</b>	Use active revision techniques such as making notes, flashcards and mind maps.
<b>Tip 5</b>	Do as many past paper questions as you can from ALL exam boards. You can find these on physics and maths tutor



Paper 2  
16<sup>th</sup> June

Summer Holidays

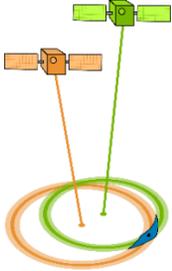
KS5 Study and training

**TSAT**  
w/c 24/2 %=

5. Power & Efficiency P7.2  
Paying for electricity  
Electrical transfer  
Transfer via Heating  
Wall and Insulation

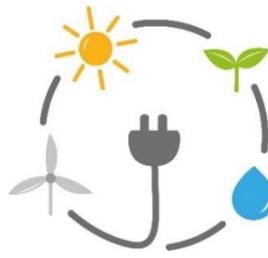


3 Space P8.3  
Big Bang  
Solar System  
Satellites  
Radiation  
Inside our planet



Interim  
w/c 9/12 %=

4. Work Done P7.1  
Energy Stores  
Energy Transfers  
Energy analysis with forces



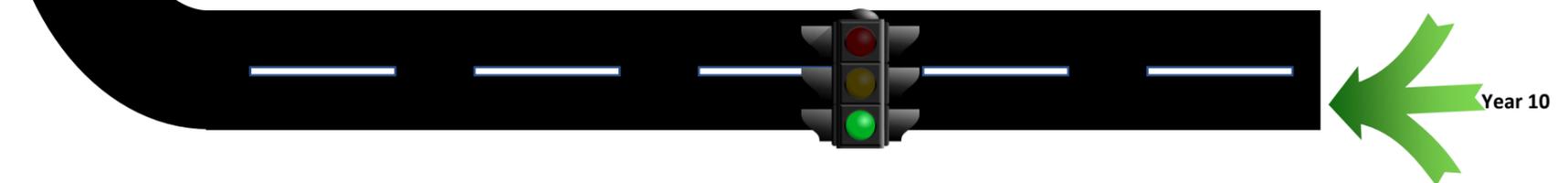
Interim  
w/c 20/1 %=

2. Powering the Earth P8.2  
Energy Sources  
The National Grid  
Mains Electricity



**TSAT**  
w/c 7/10 %=

1. Everyday motion P8.1  
Everyday Motion  
Stopping Distances  
Estimates  
Forces in Collisions



The exam board is OCR Gateway - You have already completed

P1: The Particle Model, Change of State, Density, Specific Heat Capacity & Latent heat, Pressure

P2: Motion, Newtons Laws, Momentum, Work and Power, Stretching, Gravitational & Kinetic Energy, Simple Machines.

P3: Static, Charge & Circuits

P4: Uses of Magnetism

P5: Waves, EM Spectrum and Wave Interaction

P6 Nuclear Radiation, Fission & Fusion

Review these topic areas using

BBC bitesize

Seneca learning

Kerboodle

Exercise book

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- 3) Collecting and recording data
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