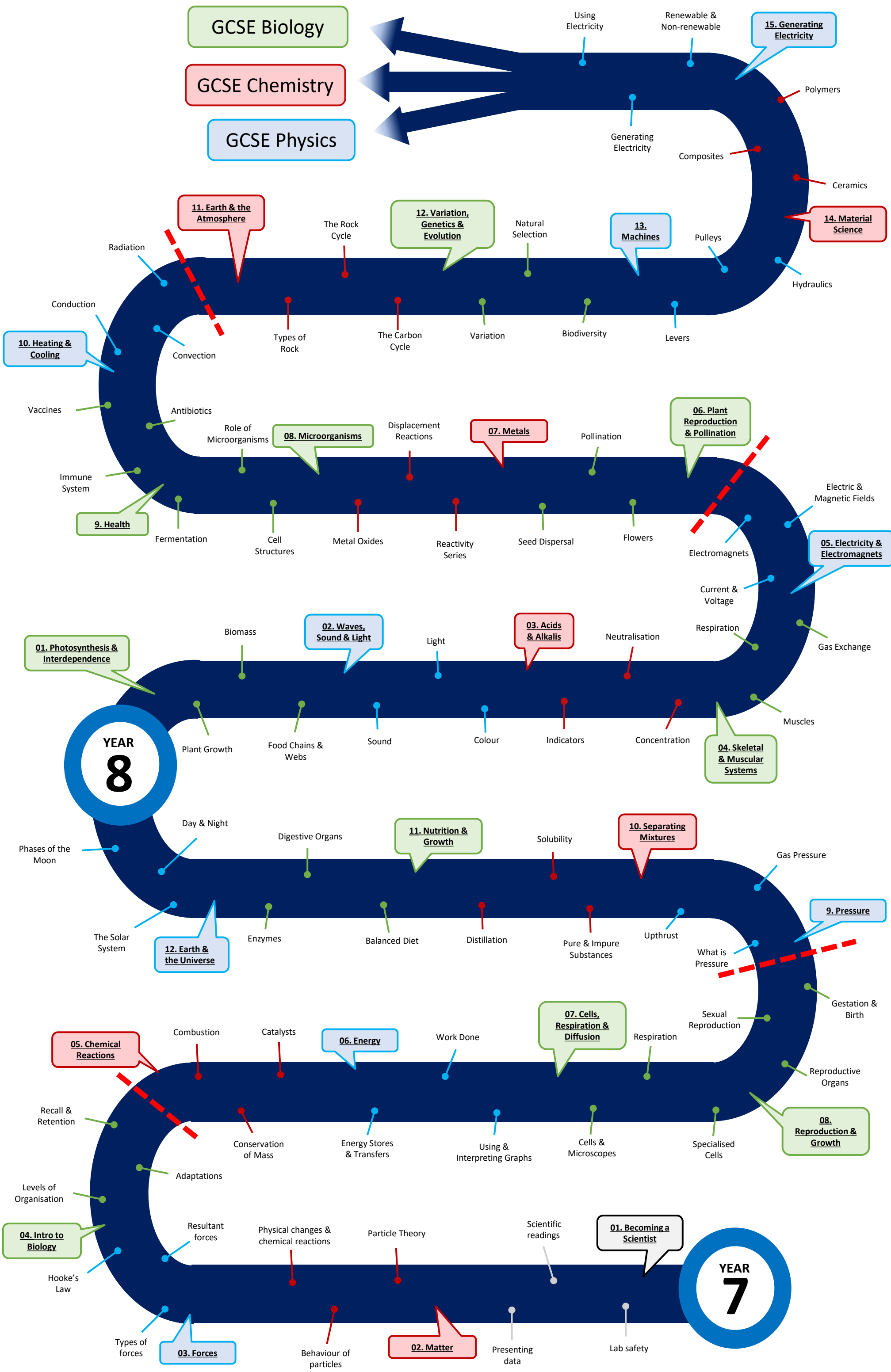
IGS KS3 Science

Biology | Chemistry | Physics

Overview | Particles | Energy | Forces | Cells | Reactions



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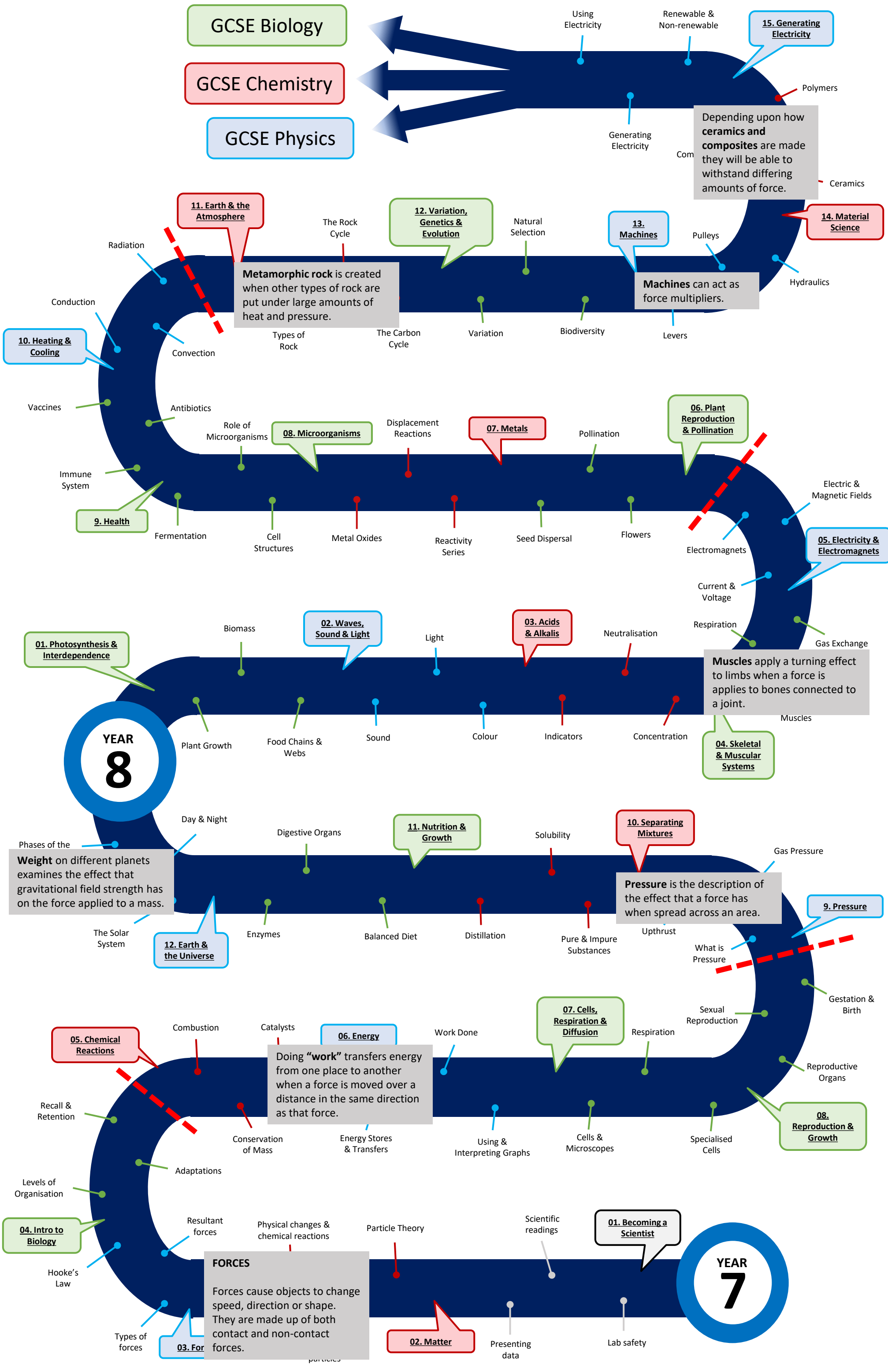

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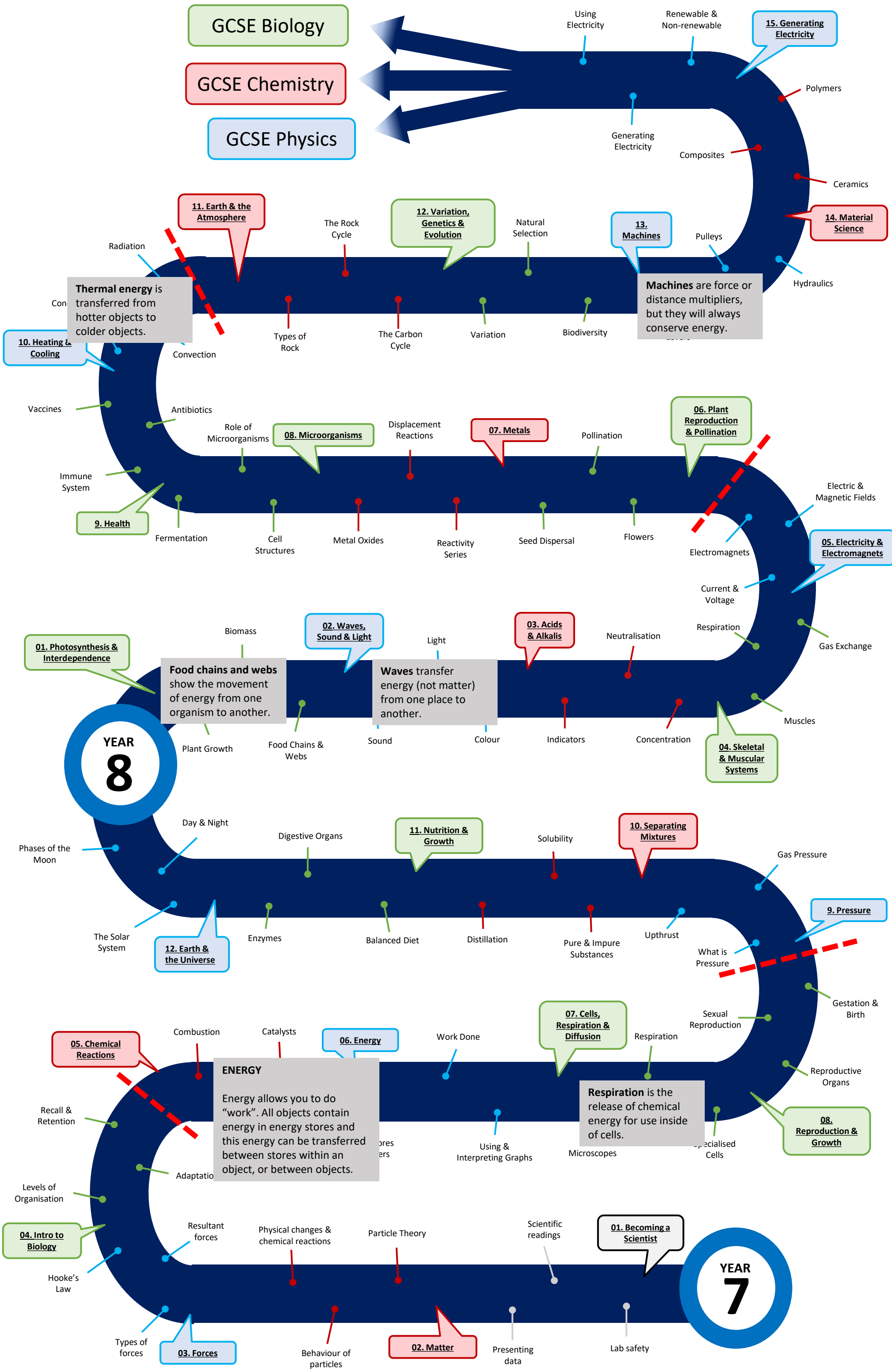

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IGS KS3 Science

Overview | Particles | Energy | Forces | Cells | Reactions

GCSE Biology

GCSE Chemistry

GCSE Physics

15. Generating Electricity

Using Electricity

Renewable & Non-renewable

Generating Electricity

Polymers

Comp

Ceramics

The properties of **polymers, composites & ceramics** is determined by the combination and arrangement of different types of particle.

14. Material Science

13. Machines

Pulleys

Hydraulics

Levers

12. Variation, Genetics & Evolution

Natural Selection

Variation

Biodiversity

11. Earth & the Atmosphere

The Rock Cycle

Types of Rock

The Carbon Cycle

Radiation

Convection

Conduction and convection is explained by the movement and collisions of particles, leading to heat transfer.

10. He Cooling

Vaccines

Antibiotics

9. Health

Immune System

Fermentation

08. Microorganisms

Role of Microorganisms

Cell Structures

07. Metals

Displacement Reactions

Metal Oxides

Reactivity Series

06. Plant Reproduction & Pollination

Pollination

Seed Dispersal

Flowers

05. Electricity & Electromagnets

Electric & Magnetic Fields

Electromagnets

Current & Voltage

04. Skeletal & Muscular Systems

Respiration

Gas Exchange

Muscles

03. Acids & Alkalis

Neutralisation

Concentration

Indicators

02. Waves, Sound & Light

Light

Sound

Colour

Sound is transmitted by collisions between particles and its speed depends on particle arrangement.

01. Photosynthesis & Interdependence

Biomass

Plant Growth

Food Chains & Webs

Concentration involves the ratio between the particles of acid and the particles of water in a solution.

YEAR 8

12. Earth & the Universe

Day & Night

Phases of the Moon

The Solar System

11. Nutrition & Growth

Digestive Organs

Enzy

Diet

Digestion involves the breaking down of larger molecules into smaller ones so that they can be absorbed by the body.

10. Separating Mixtures

Solubility

Distillation

Pure & Impure Substances

Filtration, dissolving and **evaporation** are all explained in terms of the behaviour of particles.

9. Pressure

Gas Pressure

Upthrust

Wha Press

Gas pressure is explained by the movement of particles and the forces they exert during collisions.

08. Reproduction & Growth

Sex Reprod

tion & rth

Reproductive Organs

Specialised Cells

07. Cells, Respiration & Diffusion

Respiration

Cells & Microscopes

06. Energy

Work Done

Using & Interpreting Graphs

Energy Stores & Transfers

05. Chemical Reactions

Combustion

Catalysts

Conservation of Mass

Rates of reactions are determined by successful collisions between reacting particles.

Conservation of mass is explained in terms of the number of atoms before and after a reaction being the same. Only their arrangement will have changed.

Adaptations

Levels of Organisation

04. Intro to Biology

Hooke's Law

Resultant forces

Physical changes & chemical reactions

Particle Theory

Scientific readings

01. Becoming a Scientist

YEAR 7

Types of forces

03. Forces

Behaviour of particles

PARTICLE MODEL

A description of the arrangement and movement of particles in matter, which determines a substance's state and properties.

Lab safety

Biology | Chemistry | Physics

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GCSE Biology

GCSE Chemistry

GCSE Physics

15. Generating Electricity

Using Electricity

Renewable & Non-renewable

Generating Electricity

Polymers

Polymers are created in a chemical reaction involving the combination of monomers..

14. Material Science

Ceramics

Pulleys

Hydraulics

13. Machines

Levers

Natural Selection

Biodiversity

12. Variation, Genetics & Evolution

Variation

The Rock Cycle

e Carbon Cycle

11. Earth & the Atmosphere

The carbon cycle involves a multitude of chemical reactions from **respiration** to **photosynthesis** to explain how carbon is moved between the atmosphere, rocks and biomass.

Radiation

Conduction

Convection

10. Heating & Cooling

Vaccines

Antibiotics

Fermentation is the chemical reaction that takes place during the anaerobic respiration of yeast producing ethanol and carbon dioxide.

Role of Microorganisms

08. Microorganisms

Cell Structures

Metal Oxides

Displacement Reactions

07. Metals

Displacement reactions in metals take place (or not) depending on the relative reactivity of the metals when combining a metal compound and a pure metal. The more reactive metal will end up in a compound.

Pollination

Flowers

06. Plant Reproduction & Pollination

Electric & Magnetic Fields

Electromagnets

05. Electricity & Electromagnets

Current & Voltage

Respiration

Gas Exchange

Muscles

04. Skeletal & Muscular Systems

Neutralisation

03. Acids & Alkalis

Neutralisation is a chemical reaction between acids and alkalis creating a salt. **Indicators** also undergo chemical reactions when added to acids and alkalis as evidenced by their changes in colour.

Light

Colour

Sound

02. Waves, Sound & Light

Biomass

Chains & Webs

01. Photosynthesis & Interdependence

Photosynthesis is a chemical reaction that uses the energy from sunlight to combine carbon dioxide and water to create glucose and oxygen.

YEAR 8

Phases of the Moon

Day & Night

The Solar System

12. Earth & the Universe

Digestive Organs

Enzymes

11. Nutrition & Growth

Digestion is a chemical reaction that breaks down the complex, insoluble molecules in food into simpler, soluble ones that can be absorbed by the body.

Solubility

Distillation

Pure & Impure Substances

10. Separating Mixtures

Upthrust

Gas Pressure

What is Pressure

9. Pressure

Gestation & Birth

Sexual Reproduction

Reproductive Organs

08. Reproduction & Growth

Specialised Cells

Respiration

07. Cells, Respiration & Diffusion

Respiration is a chemical reaction that takes place inside living cells in order to release energy from glucose.

Cells & Microscopes

Using & Interpreting Graphs

Work Done

Energy Stores & Transfers

06. Energy

Conservation of Mass

Catalysts

Combustion

05. Chemical Reactions

Types of chemical reaction looks at the wide range of reactions that occur and how students can identify different types.

Adaptations

Levels of Organisation

04. Intro to Biology

Hooke's Law

Types of forces

03. Forces

Resultant forces

Behaviour particles

Physical changes & chemical reactions

Particle Theory

Physical changes vs chemical reactions explains the difference between a rearrangement of particles vs the creation of new types of particle in a chemical reaction.

Scientific readings

enting data

Lab safety

01. Becoming a Scientist

YEAR 7

Biology | Chemistry | Physics

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GCSE Biology

GCSE Chemistry

GCSE Physics

15. Generating Electricity

Using Electricity
Renewable & Non-renewable
Generating Electricity
Polymers
Composites
Ceramics

14. Material Science

Pulleys
Hydraulics

13. Machines

DNA inside a cell nucleus determines some physical characteristics of an animal. Through mutation, variation and natural selection this leads to evolution.

Natural Selection

12. Variation, Genetics & Evolution

Variation
Biodiversity

The Carbon Cycle

11. Earth & the Atmosphere

The Rock Cycle
Types of Rock
Radiation
Conduction
Convection

White blood cells are a type of specialised cell in the immune system that helps the body in the destruction of pathogens.

Vaccines
Antibiotics
Immune System

9. Health

Fermentation
Role of Microorganisms

08. Microorganisms

Cell Structures
Metal Oxides

Microorganisms contain slightly different organelles to animal cells.

Displacement Reactions
Reactivity Series

07. Metals

Seed Dispersal
Pollination
Flowers

06. Plant Reproduction & Pollination

Plant reproduction involves the fusion of gametes (pollen and ovum) to produce a seed.

Electromagnets
Electric & Magnetic Fields

05. Electricity & Electromagnets

Current & Voltage
Respiration
Gas Exchange
Muscles

04. Skeletal & Muscular Systems

Concentration
Indicators
Colour
Sound
Food Chains & Webs
Plant Growth

Plant cells contain chlorophyll which are used during photosynthesis to produce glucose.

01. Photosynthesis & Interdependence

Biomass

02. Waves, Sound & Light

Light

03. Acids & Alkalis

Neutralisation

Muscle cells contain many mitochondria for the quick release of energy during exercise.

8

Phases of the Moon
Day & Night
The Solar System

12. Earth & the Universe

Enzymes
Digestive Organs

11. Nutrition & Growth

The digestive system includes specialised cells in the lining of the intestines covered in cilia to help with the absorption of digested nutrients.

Distillation
Solubility
Pure & Impure Substances

10. Separating Mixtures

Sperm and egg cells are a type of specialised cell known as a gamete. These cells are required for sexual reproduction.

Upthrust
What is Pressure
Gestation & Birth
Sexual Reproduction
Reproductive Organs

08. Reproduction & Growth

Specialised Cells

07. Cells, Respiration & Diffusion

Respiration

Respiration is a chemical reaction taking place inside living cells to release energy. **Specialised cells** introduces cells with adaptations that allow them to perform certain functions.

Work Done

06. Energy

Energy Stores & Transfers
Conservation of Mass
Catalysts
Combustion

05. Chemical Reactions

Recall & Retention
Levels of Organisation

Cells are the building blocks of multicellular organisms and through combinations form tissues, organs, organ systems and organisms.

04. Intro to Biology

Hooke's Law
Types of forces

03. Forces

Behaviour of particles

02. Matter

Particle Theory
Presenting data
Scientific readings
Lab safety

01. Becoming a Scientist

YEAR 7

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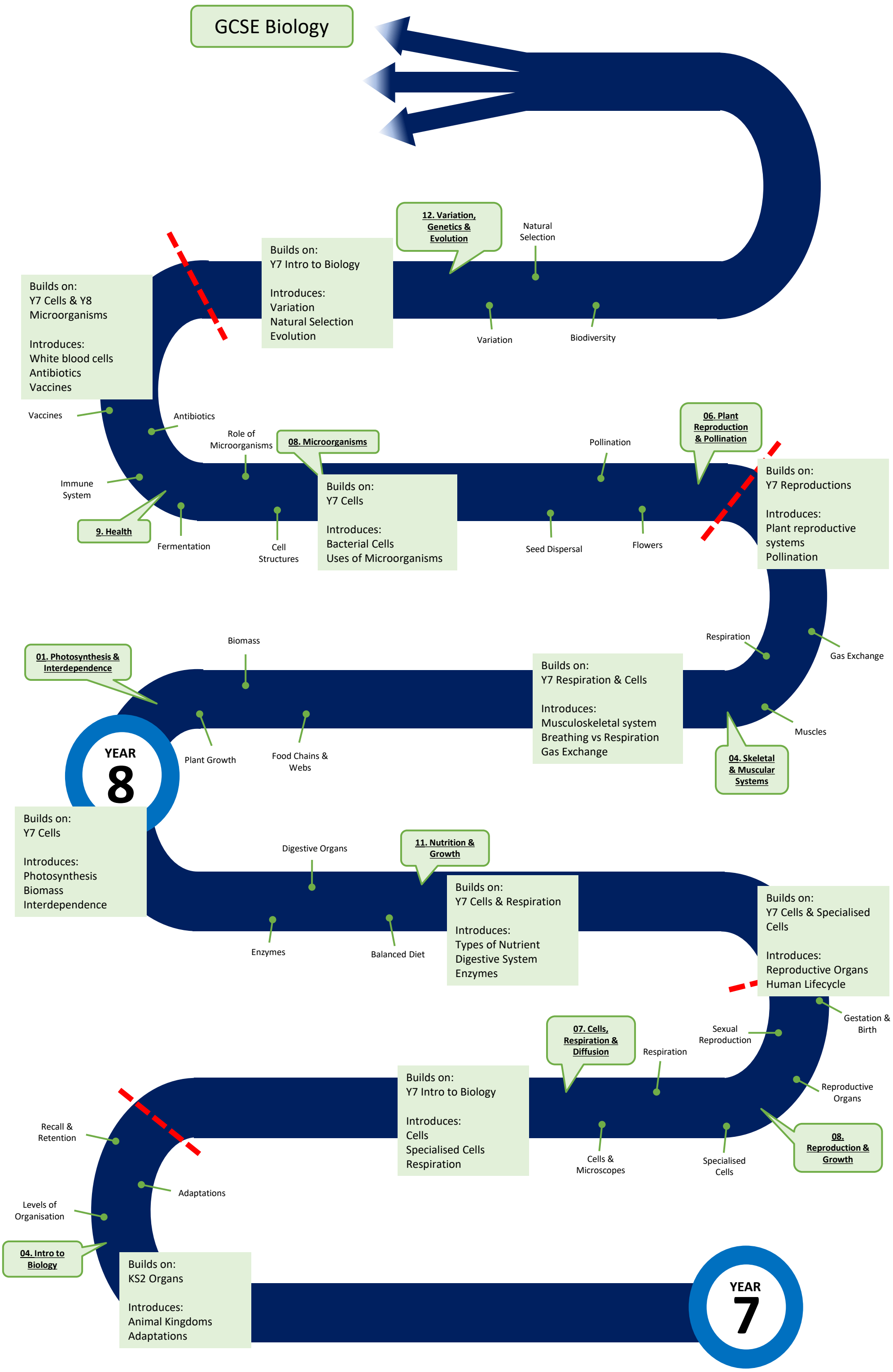

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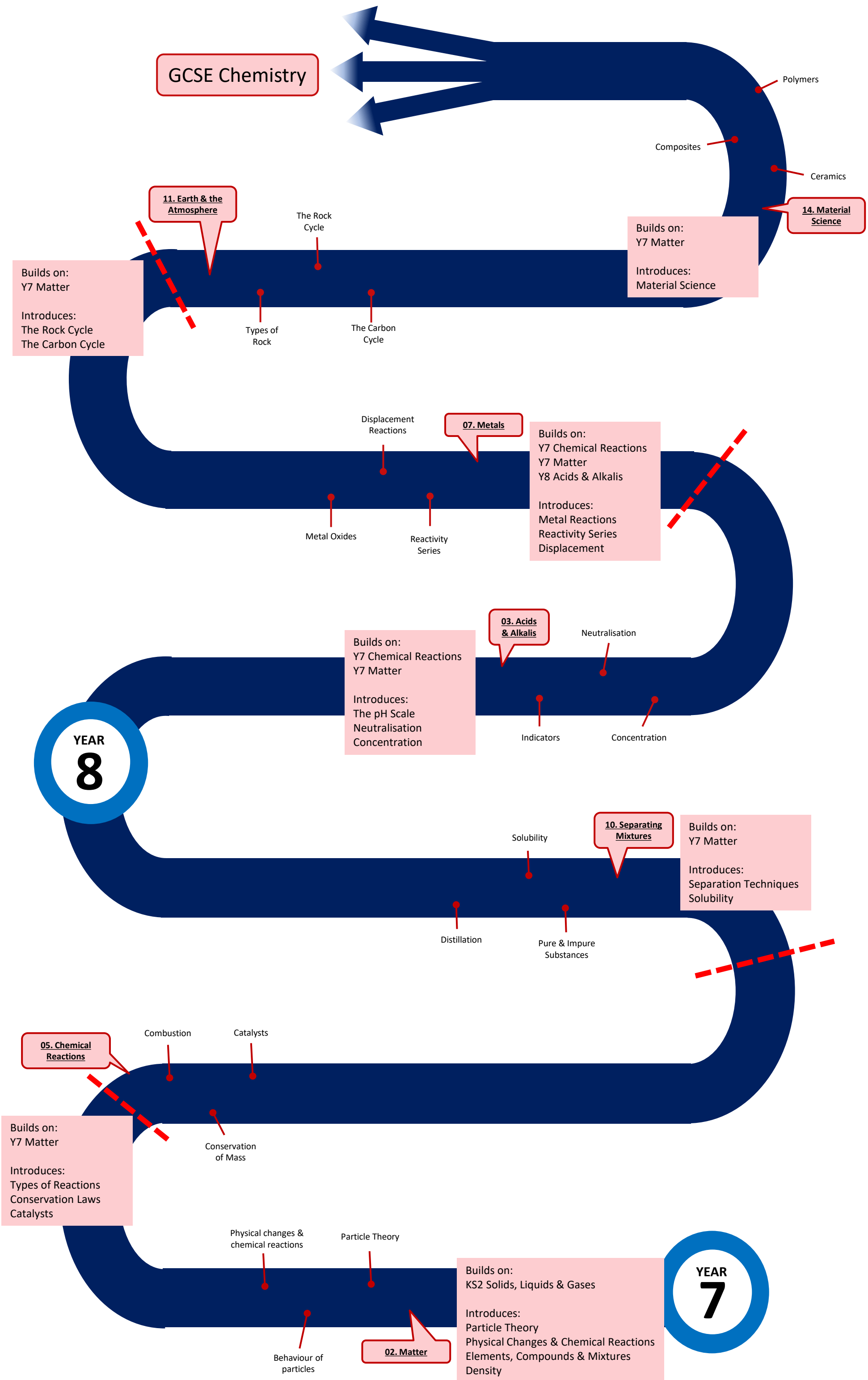

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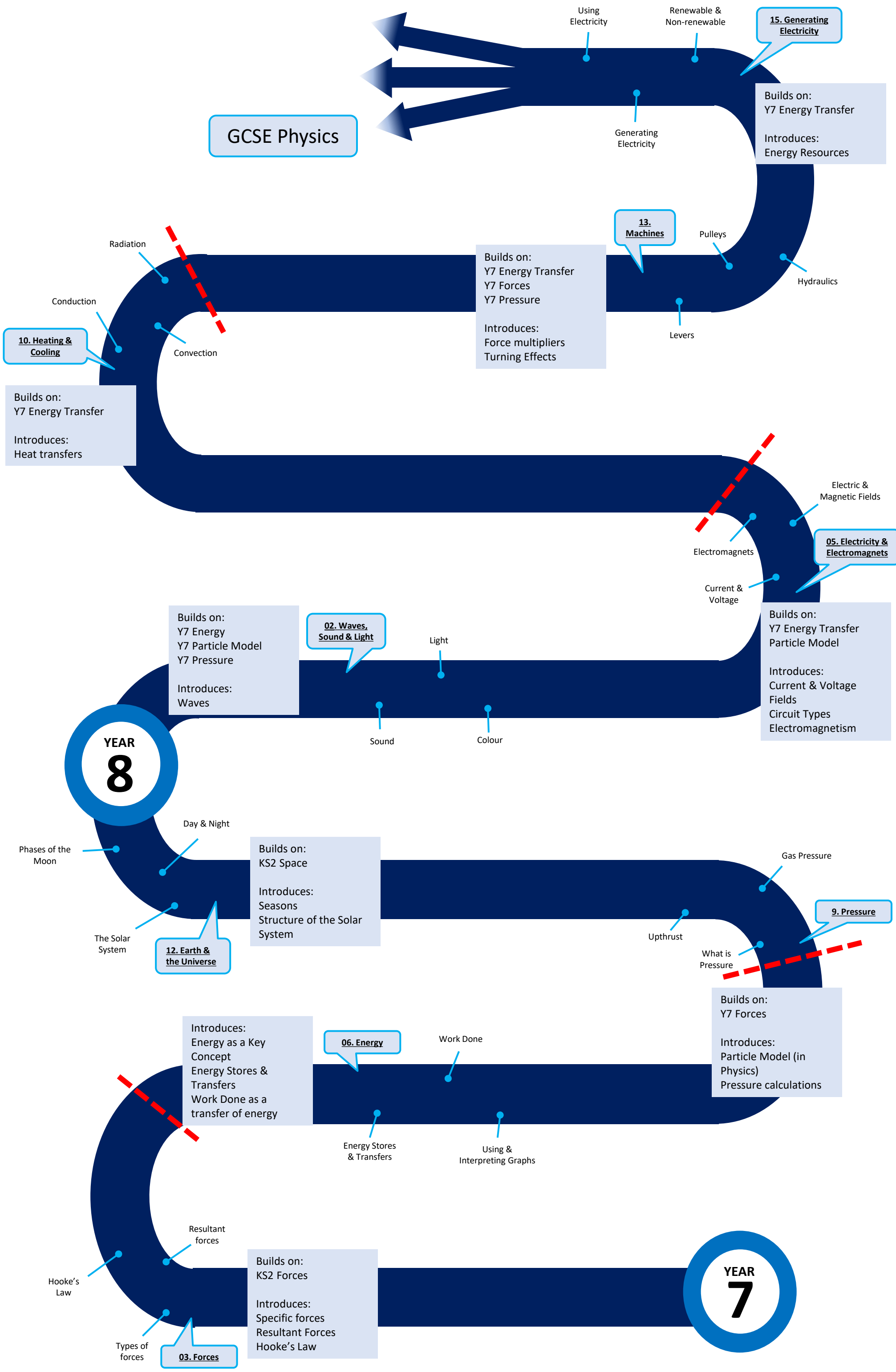
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