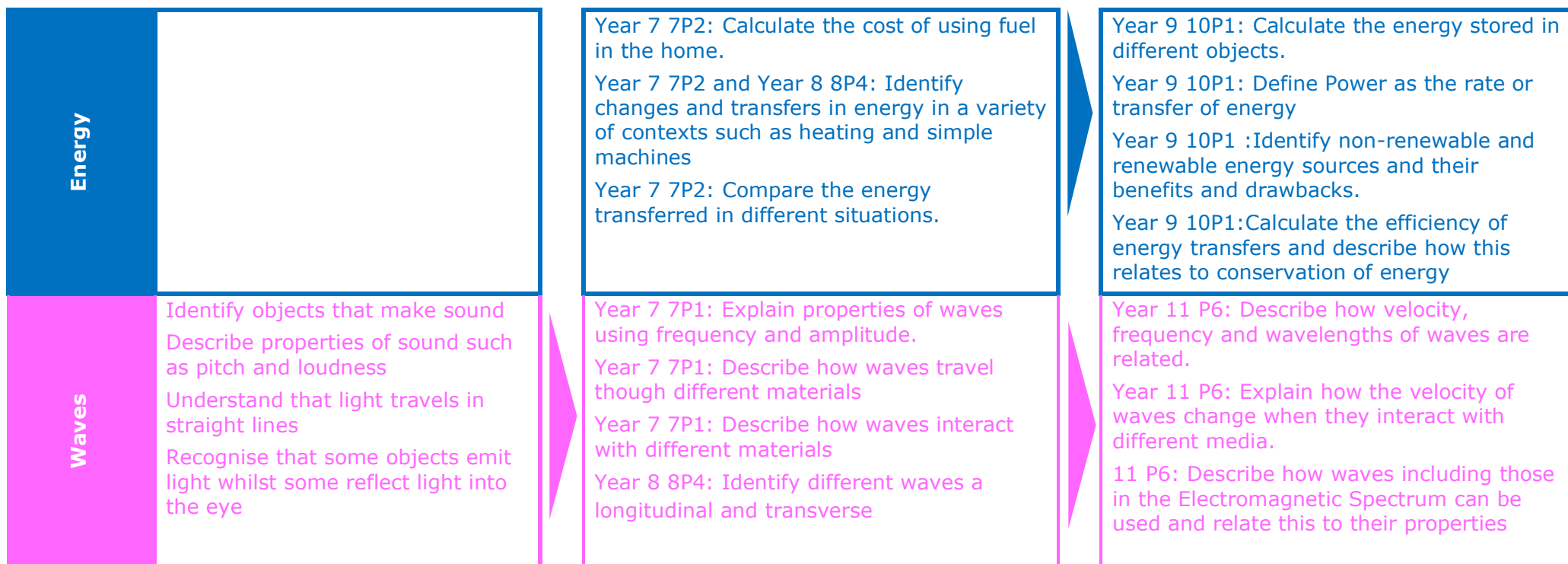


# Mapping of the Key Ideas in Science – Where am I and where am I going?

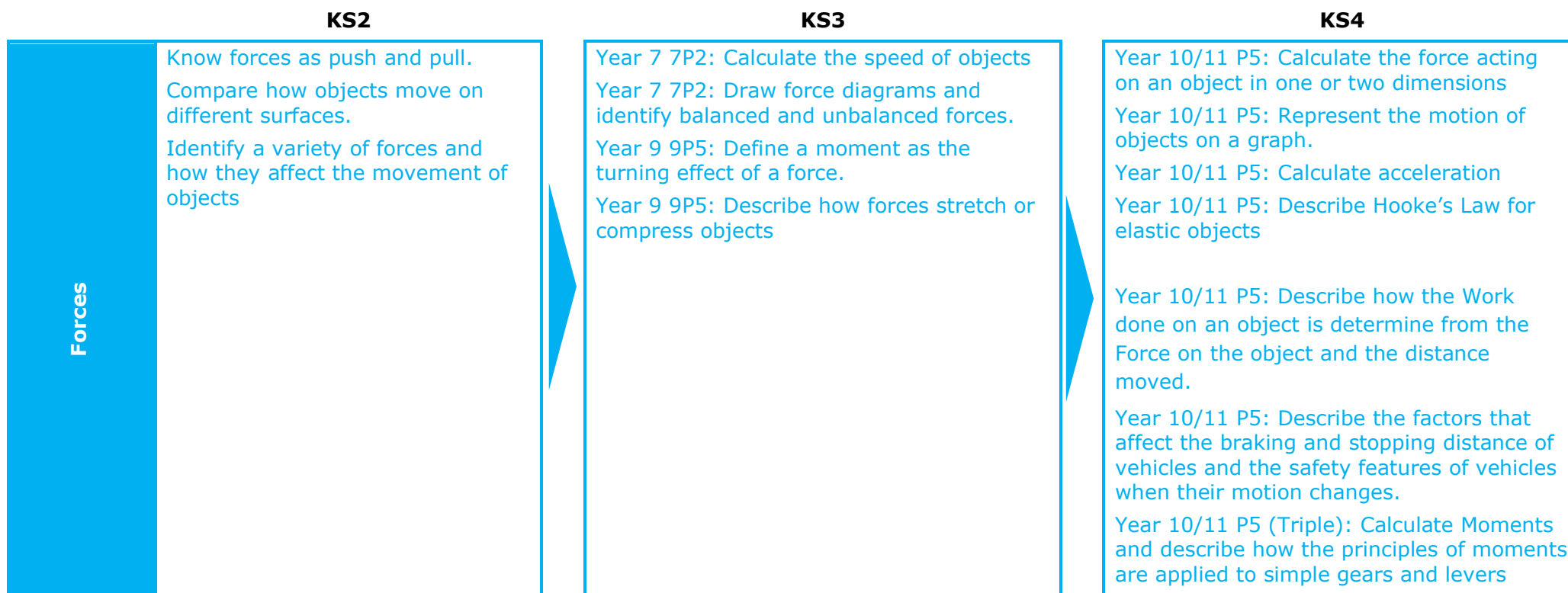
KS2

KS3

KS4



# Mapping of the Key Ideas in Science – Where am I and where am I going?



## Mapping of the Key Ideas in Science – Where am I and where am I going?

KS2

Electricity and Electromagnets

Notice that the magnetic force acts at a distance.

Observe how magnets interact with some materials but not others

Describe magnets as having 2 poles.

Predict whether magnets will attract or repel each other

Identify common appliances that run on electricity

Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers

In a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors

KS3

Year 7 7P1: Describe when magnets will attract or repel.

Year 7 7P1 and Year 8 8P3: Describe the magnetic field around a bar magnet and electromagnet.

Year 7 7P1: Describe how the earth's magnetic field can be used for navigation.

Year 8 8P3: Describe electric current as a flow of charge

Year 8P3: Describe Conductors and Insulators in terms of resistance

Year 8 8P3: Describe potential difference in terms of the energy supplied to components in series and parallel circuits.

Year 8 8P3: Describe static electricity in terms of positive and negative charges.

KS4

Year 11 P7: Describe the magnetic fields of permanent and induced magnets.

Year 11 P7: Describe the magnetic effect of current and how it can be enhanced.

Year 11 P7: Describe how transformers are used in the national grid.

Year 10 P2: Describe current, resistance and voltage relationships for different circuit elements; including their graphical representations

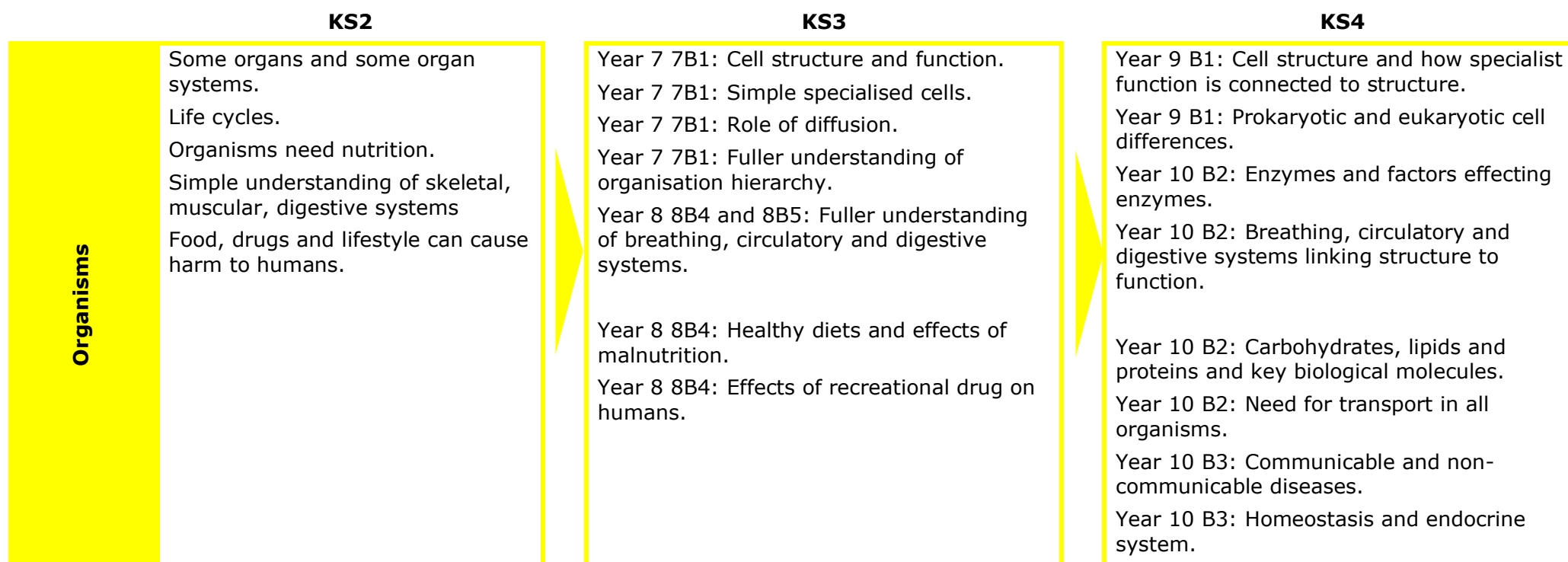
Year 10 P2: Describe quantitatively the charge flowing as the product of current and time

Year 10 P2: describe equivalent resistance for resistors in series

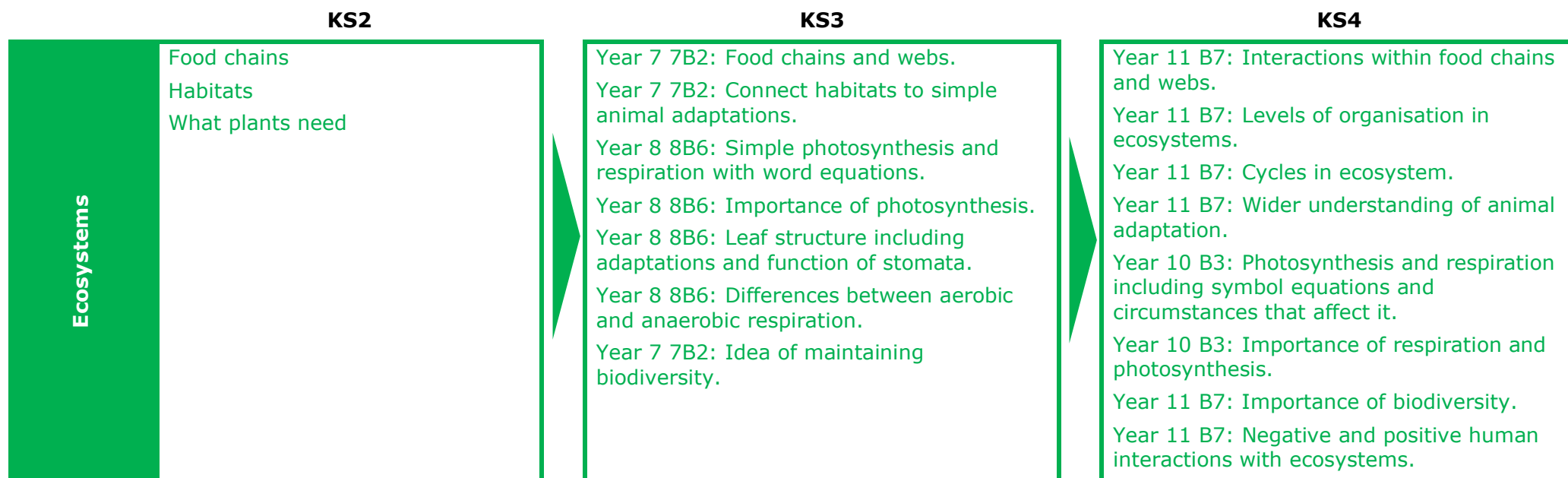
Year 10 P2: Describe the domestic a.c. supply and Plug components

Year 10 P2: Describe quantitatively how power transfer is related to p.d. and current, or current and resistance

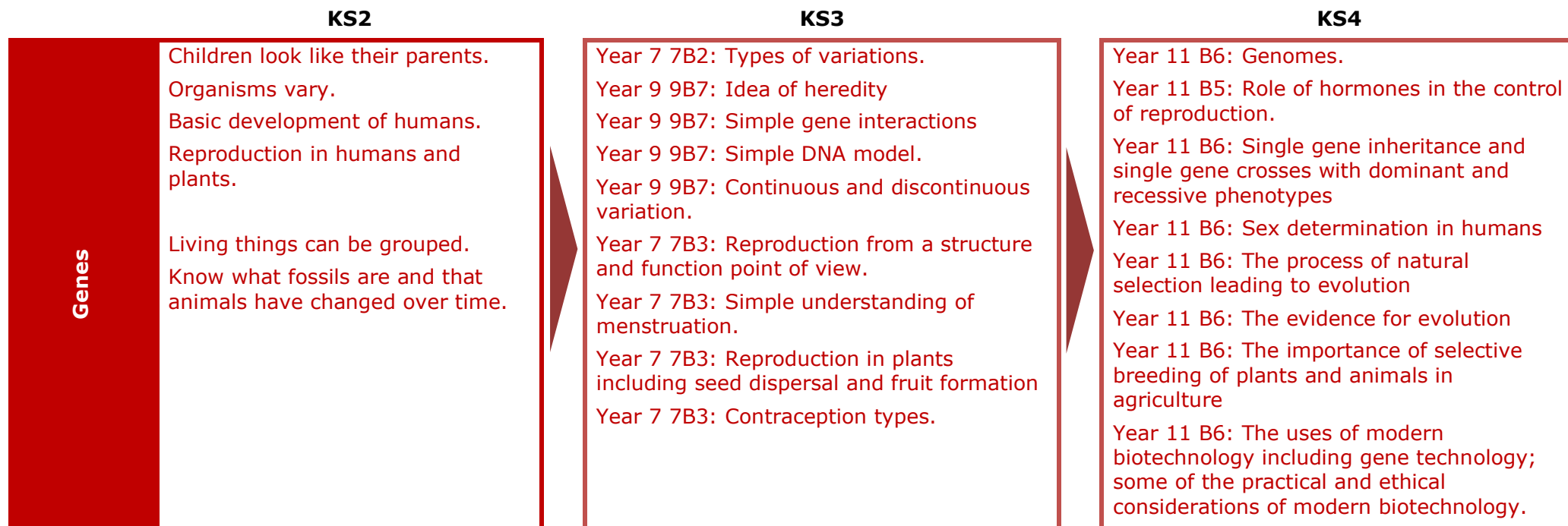
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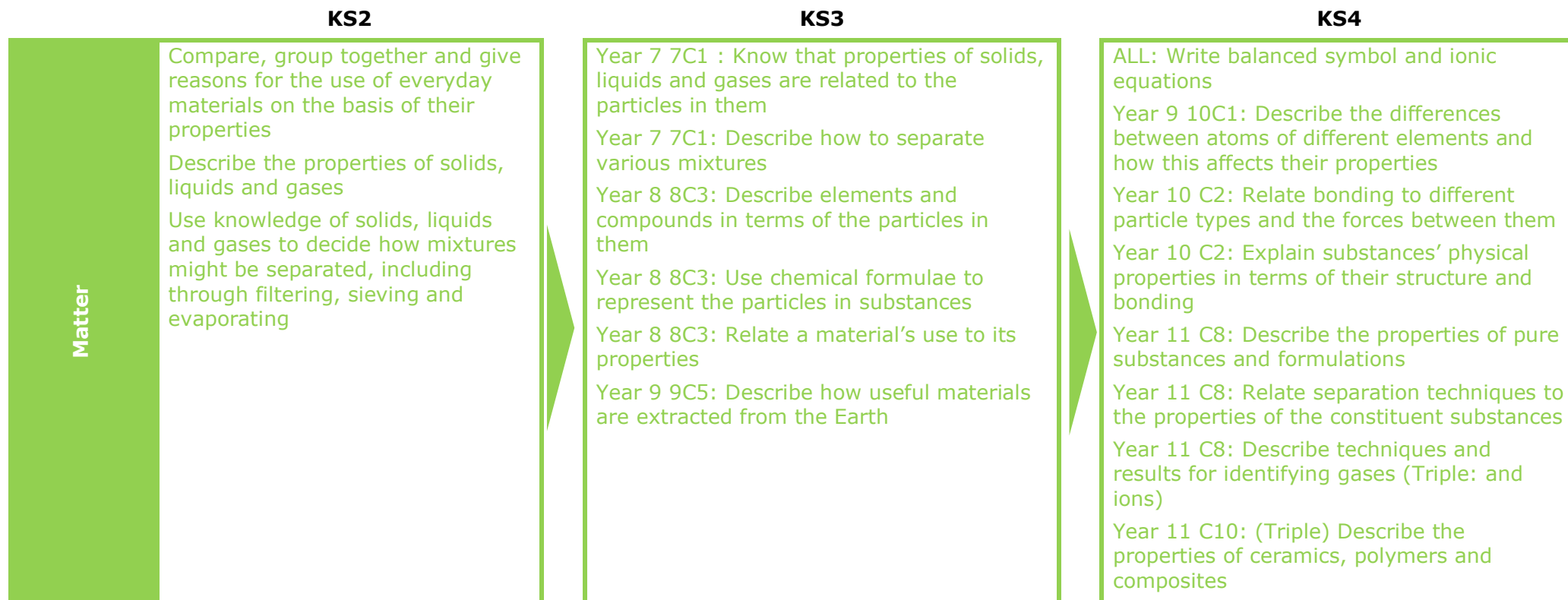
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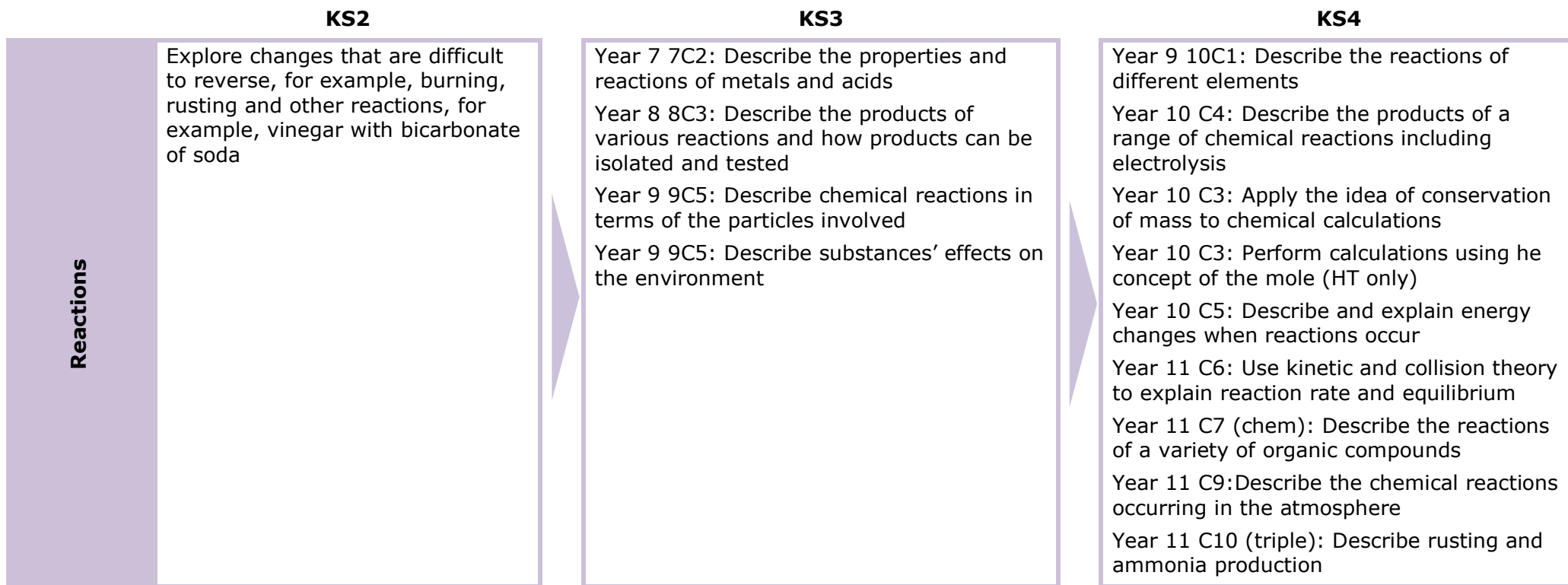
# Mapping of the Key Ideas in Science – Where am I and where am I going?



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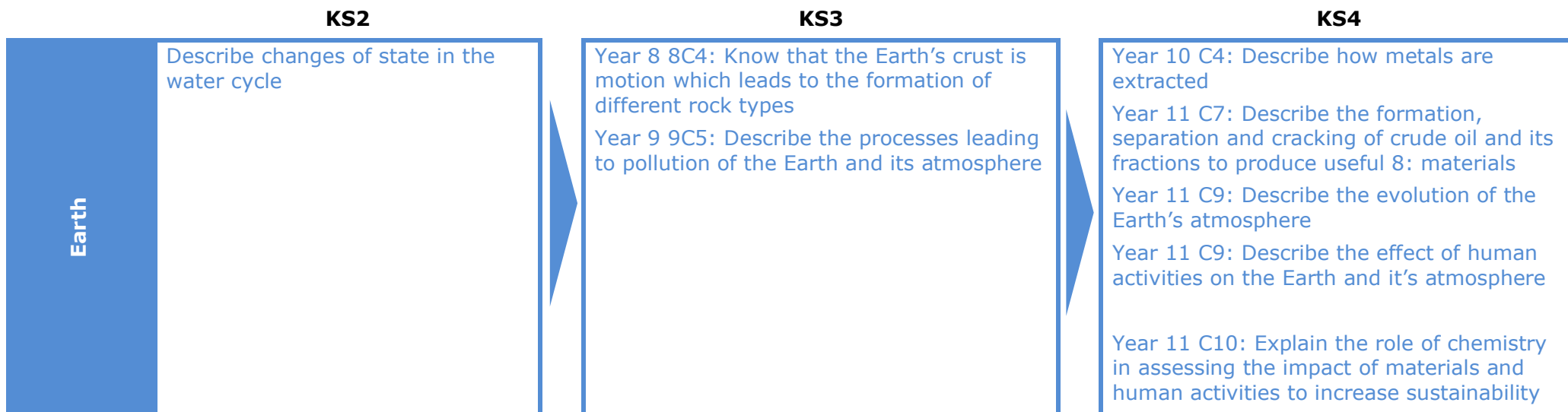


# Mapping of the Key Ideas in Science – Where am I and where am I going?





# Mapping of the Key Ideas in Science – Where am I and where am I going?




# Mapping of the Key Ideas in Science – Where am I and where am I going?

Working Scientifically

KS2

KS3

KS4



**Analyse**

Read a pictogram or bar graph.  
Say if your results fit the pattern you are given.

Calculate a mean.  
Spot an anomaly.  
Describe a graph.  
Spot easy mistakes in your experiment.  
Draw a table.  
Begin to pick the correct graph to draw.

Remove an anomaly from a mean.  
Explain a graph with scientific back up.  
Spot mistakes in experiments and decide how to fix them.  
Know which graph to draw and justify your choice.



**Communicate**

Use simple scientific language.  
Present your ideas simply in an oral or in written form.

Use good English to explain your ideas. (SPAG)  
Begin to use scientific vocabulary.  
Write for your age group.  
Use a diagram to help.  
Begin to use evidence to back up ideas.

Use the correct scientific vocabulary.  
Write for varying age groups.  
Decide if a diagram helps or not.  
Use good evidence to back up your ideas.

# Mapping of the Key Ideas in Science – Where am I and where am I going?

**Working Scientifically**

**KS2**

**KS3**

**KS4**



**Inquire**

Set up simple experiments given a method.

Record simple result.

Know what a “fair test” is.

Make simple prediction with support.

Prepare a simple table for an experiment.

Carry out a method for an experiment with multiple steps.

Begin to plan experiments.

Understand what variables there are.

Prepare a table for multiple observation from an experiment.

Accurately carry out an experiment.

Plan out an experiment that will provide valid results.

Suggest a hypothesis.

Know how to control variables.



**Solve**

Identify if evidence supports or contradicts your ideas.

Spot dangers in the lab.

Describe how a new scientific discovery would affect you.

Know that science has consequence

Spot obvious bias and know why it is an issue.

Know that theories change.

Spot hazards and risks in experiments.

Discuss the consequences of scientific discoveries.

Explain why you think a source may be bias.

Know of a specific theory that has changed and know why.