**Rationale behind KS2 Mixed Age planning (following a 2 year rolling program)**

The following has been taken from the useful information from the primary-science website (links below) to support the rationale for sequencing units within a mixed-age curriculum map.

* Sequencing learning pgs 6-10 for mixed age classes - <https://www.primary-science.co.uk/product-page/sequencing-science-topics>
* 2-year mixed age rolling prog example curriculum map – particularly useful for KS1 <https://www.primary-science.co.uk/shop>

**Y3/4**

**Animals, including humans**

If pupils encounter the Year 4 Animals, including humans topic as the first cycle, they would not have the necessary prior knowledge that animals and humans “get nutrition from what they eat” from the Year 3 topic. Consequently, before teaching about the digestive system in the Year 4 Animals, including humans topic, the pupils will need to be taught that animals and humans get the nutrients they require from the food they eat.

There is no other content in Year 4 that relies on prior knowledge from Year 3. There are, however, topics that are linked within year-groups, as shown above. Therefore, it makes most sense to have the Year 3 topics in one cycle and the Year 4 topics in the other.

**Y5/6**

**Living things in their habitats**

If pupils encounter the Year 6 topic as the first cycle, they would not have the necessary prior knowledge from the Year 5 topic to access the learning. Consequently, these two topics should be kept in the same cycle.

**Evolution and inheritance**

If pupils encounter the Year 6 Evolution and inheritance topic as the first cycle, they would not have the necessary prior knowledge from the Year 5 Living things and their habitats topic to access the learning. Consequently, these two topics should be kept in the same cycle.

**Properties and changes of materials**

There is no learning interdependency between this topic and any other topic in this phase. However, it is the only Chemistry topic in upper Key Stage 2 and it is a large one. Consequently, it may be worth considering splitting it into two smaller topics, such as Properties of materials and Changes of materials as shown below, and put the two topics in different cycles.

Properties of materials

• Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.

• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

Changes of materials

• Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.

• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

• Demonstrate that dissolving, mixing and changes of state are reversible changes.

• Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

**\*Animals, including humans**

This topic contains important information about puberty which should be delivered in Year 5. This aspect should be taught to the Year 5 pupils as part of Physical Health and Mental Wellbeing, outside of the science two-year cycle for the phase. This should take place before pupils are taught the Year 5 Animals, including humans topic.

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|  | **Autumn 1** | | **Autumn 2** | | **Spring 1** | | **Spring 2** | | **Summer 1** | | **Summer 2** |
|  | **Y3 Plants (gathering evidence of life cycles)** | | | | | | | | | | |
| **Y3/4**  **Cycle A** | **Y3 ANIMALS, INCLUDING HUMANS**  **~~Nutrition (NC Y3)~~** ~~humans get nutrition & energy from the food they eat, food groups from Eatwell Plate.~~  **Skeletons and movement (NC Y3)**  Potential to link to a PE/PHSE link to exercise and looking after our bodies. | | **Y3 ROCKS**  **(NC - Y3)**  **Y3 PLANTS**  (examples of seed dispersal in everyday life –e.g. trees such as oak/acorn, spinners/sycamore, conkers/horse chestnut) | | **Y3 FORCES AND MAGNETS** | | **Y3 FORCES AND MAGNETS**  **Y3 PLANTS**  (examples of seed dispersal in everyday life –e.g. dandelion wind dispersed seeds – Apr/early May) | | **Y3 PLANTS**  (parts and  their functions and  investigating growth) | | **Y3 LIGHT**  **Y3 PLANTS** cont…  (life cycles)  (examples of pollination in everyday life –e.g. flowering meadow plants being visited by pollinators – tally charts and pattern-seeking) |
|  | | | | | | | | | | | |
|  | **Autumn 1** | **Autumn 2** | | **Spring 1** | | **Spring 2** | | **Summer 1** | | **Summer 2** | |
|  | **Y4 Living things and their habitats (naming and identifying living things in the local environment)** | | | | | | | | | | |
| **Y3/4**  **Cycle B** | **ANIMALS, INCLUDING HUMANS**  **Nutrition (NC Y3)** humans get nutrition & energy from the food they eat, food groups from Eatwell Plate.  **Teeth and Digestion (NC Y4)** | **Y4 Electricity** | | **Y4 States of matter** | | | | **Y4 Sound** | | **Y4 Living things and**  **their habitats** | |
| **Notes:**  **Y4 States of matter**  Needs x2 half term to deliver due to amount of content and practical nature of this unit.  This unit could be split before and after Christmas with Electrictiy in between to provide time for spaced retrieval if preferred. | | | | | | | | | | | |
|  | **Autumn 1** | **Autumn 2** | | **Spring 1** | | **Spring 2** | | **Summer 1** | | **Summer 2** | |
| **Y5/6**  **Cycle A** | **Y6 ANIMALS, INCLUDING**  **HUMANS** | **Y5 PROPERTIES AND**  **CHANGES OF MATERIALS**  **(PROPERTIES OF**  **MATERIALS)** | | **Y5 FORCES** | | **Y5 ANIMALS, INCLUDING**  **HUMANS** | | **Y6 LIGHT** | | **Y5 EARTH AND SPACE** | |
|  | | | | | | | | | | | |
| **Y5/6**  **Cycle B** | **Autumn 1** | | **Autumn 2** | | **Spring 1** | | **Spring 2** | | **Summer 1** | | **Summer 2** |
|  | **LIVING THINGS AND HABITATS**  (NC Y5) | | **LIVING THINGS AND HABITATS**  (NC Y6)  Classification | | **EVOLUTION & INHERITANCE**  (NC Y6)  Including adaptation | | **ELECTRICITY**  (NC Y6) | | **PROPERTIES AND CHANGES OF MATERIALS**  Changes of materials  (NC Y5) | | |
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**Effective Monitoring**

The key to any good curriculum map is regularly monitoring the impact on pupils' learning. This can be through learning walks, pupil voice interviews, book scrutiny, planning scrutiny and through good team teaching/planning opportunities.

Can children recall what they have learned? Can they do this at a distance from when the units were taught?

How is teaching adapted to maximise pupil learning?

Is genuine progression evident across KS2?

Are LKS2 skills embedded, are UKS2 skills evident for older children?

Can Y3 access the more challenging concepts with appropriate scaffolds and adaptive teaching?

Are children's misconceptions identified and does learning take account of these to help reduce them?

Does anything in the rolling program need to be adapted to improve outcomes?

Is it working?

The start and end of topics do not need to coincide with school holidays. If you have covered the National Curriculum statements for the topic and the pupils are secure, you should move on to the next topic. The topics that are spread across the year are taught outside throughout the year.