**By the end of Summer 1, you will know:**

**Space**

88. What is weight?
89. What is the unit of weight?
90. What is mass?
91. What is the unit of mass?
92. What is the gravitational field strength on Earth?
93. What affects the strength of gravity?
*94. How is weight calculated?*
*95.* What is at the centre of our solar system?
96. Name the planets in the solar system in order of distance from the Sun.
97. What is the asteroid belt?
98. Where is the asteroid belt?
99. What is a model?
100. What is the heliocentric model?
101. What is the geocentric model?
102. What is required for a theory to be accepted?
103. What is a satellite?
104. Name a natural satellite.
105. What is an artificial satellite?
106. What is meant by phases of the moon?
107. Name the main phases of the Moon?
108. How fast does light travel?
109. What is a light year?
110. What is a star?
111. What is a galaxy?
112. What is the name of the galaxy we are in?
113. What is the Universe?
114. What is an axis?
115. What angle is Earth's axis tilted by?
116. What is a day?
117. What is night?
118. What is a year?
119. What is a season?

**By the end of Summer 2, you will know:**

**Types of cell (Eukaryote and Prokaryote)**

1. What key features do all eukaryotic cells have?
2. How does the size of a bacterial cell compare to a plant or animal cell?
3. What do prokaryotic cells not have?
4. What does uni-cellular mean
5. What does multi-cellular mean
6. How is DNA found in a bacterium?
7. Name the 5 sub-cellular structures found in most animal cells
8. Give the function of each sub-cellular structure.
9. Name the 2 additional sub-cellular structures that can be found in a plant cell.
10. Give the function of each sub-cellular structure.
11. What are plant and algal cells cell walls made of?
12. What does this do to the cell?

**Level of Organisation: Tissue & Organs**

1. What are cells?
2. What are sub-cellular organelles?
3. What is a tissue?
4. What are organs?
5. What are organ systems?
6. Name 6 different plant tissues.
7. Name 4 plant organs
8. What does the root, stem and leaves form?
9. What is the purpose of this?
10. Put these in size order: organism, organ, cell, tissue, organelle, organ system.

**Microscopy (Required Practical) and Magnification:**

1. Define magnification
2. What is the equation for magnification.
3. Define resolution
4. Name 2 types of microscope.
5. Which has a higher resolving power?
6. Which has a higher magnification?
7. What have microscopes enable biologists to do?
8. How many um are in 1mm?
9. How many nm are in 1um?
10. Write 1cm, 1mm, 1um and 1nm in standard form.
11. What piece of apparatus is used to measure the size of an image?
12. What does the prefix centi- mean in standard form?
13. What does the prefix milli- mean in standard form?
14. What does the prefix micro- mean in standard form?
15. What does the prefix nano- mean in standard form?
16. What is used to observe plant and animal cells?

**Nucleus, cell division and mitosis**

1. What do cells differentiate to form?
2. When do most types of animal cell differentiate?
3. When do plant cells differentiate?
4. In mature animals, cell division occurs for what purpose?
5. Where are chromosomes found?
6. What are chromosomes made of?
7. What is carried on chromosomes?
8. In body cells, how are chromosomes normal found?
9. What is the cell cycle?
10. What happens to the genetic material during the cell cycle?
11. What must happen before a cell can divide?
12. What does the DNA do before a cell can divide?
13. What happens in mitosis?
14. What happens in stage 3 of the cell cycle?
15. What is the importance of cell division by mitosis in multicellular organisms?
16. What is a model used for?

**Plant Stem cells & Specialisation**

1. Name 3 specialised cells in plants
2. What are root hair cells adapted for?
3. What is the function of xylem tissue?
4. What is it composed of?
5. What strengthens xylem?
6. What role does xylem play?
7. What role does phloem play?
8. What does phloem consist of?
9. What is a stem cell?
10. What is the name of the process by which stem cells become specialised cells?
11. Where are stem cells found in plants?
12. What and when can meristem tissue differentiate?
13. What is an advantage of stem cells from meristem tissue?
14. What are root hair cells adapted for?

**Animal Stem cells & Specialisation**

1. Name 3 specialised cells in animals.
2. Where are stem cells found in animals?
3. What can stem cells from human embryos form?
4. What can stem cells from adult bone marrow form?

5. What can stem cells be used to treat?
6. In therapeutic cloning what can be said about the embryo produced?
7. Why is this an important feature?
8. What are some of the disadvantages of the use of stem cells?

**Plant Transport (Required Practical)**

1. How can substances move into and out of cells?
2. Define diffusion
3. Name some substances transported in and out of cells by diffusion in gas exchange?
4. Name a waste product from cells into the blood plasma?
5. Name 3 factors which affect the rate of diffusion.
6. What can be said about a single-celled organisms surface area: volume ratio?
7. Why is this important?
8. Give 3 examples in animals of exchange surfaces.
9. Give 2 examples in plants of exchange surfaces.
10. Give 3 ways to make exchange surfaces more effective.
11. How does water move across cell membranes?
12. What is osmosis?
13. How do you calculate percentage gain.
14. What is active transport?
15. What is required for this process?
16. Where does this come from?
17. How is this used in plant root hairs?
18. Why is this important for plants?
19. How is this used in animals' guts?
20. Why is this important for animals?
21. What is the equation to calculate percentage mass change?
22. What piece of equipment is used to measure mass?
23. Why must the food sample be dried before measuring the mass?

**Translocation & Transpiration**

1. What is transpiration?
2. What is translocation?
3. How does cell sap move from one phloem cell to the next?
4. What piece of equipment can be used to measure transpiration?

**Photosynthesis & Leaf Adaptations**

1. What is the role of stomata and guard cells?
2. What equation represents photosynthesis?
3. What are the chemical symbols for: carbon dioxide, water, oxygen and glucose?
4. HT: What is the balanced symbol equation for photosynthesis?
5. Is photosynthesis exothermic or endothermic?
6. How is energy transferred from the environment and where to?
7. What 5 things can glucose produced in photosynthesis be used for?
8. What is the function of cellulose?
9. What are amino acids used for?
10. What else to plants need to use alongside amino acids and where do they get them from?