Subject: Science	Biology - cells and organisation, reproduction	
Class: T1	**Teacher: Jess Hallett**	**Term: term 1**
Key Vocabulary: cells, organisation, reproduction, cell wall, cell membrane, cytoplast, nucleus, vacuole, mitochandra, chloroplasts, diffusion, unicellular, multicellular, reproduction, skeleton, muscles, gestation, fertilisation, foetus, placenta,	**Alternative Learning Environments (eg FREE forest school, field, playground, park, woods, English Heritage, shop, swallow aquatics, garden centre, Rochester Museum):** Forest school, field, playground	**Resources:** pencils, whiteboards, whiteboard pens and rubbers, worksheets, workbooks, wax crayons, bricks, wood, plastics, kitchen towels, pipettes, water beakers, post-it notes, wax crayons, paint

Unit Aim: This unit aims for pupils to have a better knowledge and understanding of Cells, organism and reproduction. By starting with building upon knowledge of surrounding cells within plants and animal students will have an increased knowledge of organisms. Pupils will also have an introduction to reproduction of plants as well as humans.
Prior Learning: Pupils have covered the primary science curriculum learning to develop an understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.

Future Learning: Pupils will go on to learn about the different studies of science – biology, chemistry and physics to start equipping the with the scientific knowledge required to understand the uses and implications of science, today and for the future.
Unit Expectations: **All:** All pupils will be able to distinguish between plant and animal cells and be able to recite basic knowledge surrounding biomechanics and reproduction **Some:** Some pupils will be able to identify similarities between plant and animal cells as well as explaining the biomechanics of the skeleton and how reproduction of cells occurs **A Few:** A few pupils will be able to explain all types of cells including the definition of unicellular and multicellular organisms, go into details of the structure and function of the human skeleton and explore in depth reproduction of plant and animal cells.
Links with other subjects: **Literacy:** Writing and reading skills **PSHCE:** Reproduction knowledge

Milestones
Stage 2
With guidance, begins to notice patterns and relationships
Talks about what they have found out and how they found it out.
Identifies and compares the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
Finds out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Stage 3
Recognises that soils are made from rocks and organic matter.
With support is beginning to use some of the following methods to record their findings: drawings, labelled diagrams, keys, bar charts, and tables.
With support, discusses the most appropriate type of scientific enquiry they might use to answer questions.

Stage 4
Uses straightforward scientific evidence to answer questions and to support their findings
Uses relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.
Starts to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions.
Compares and groups materials together, according to whether they are solids, liquids or gases.

Week	Weekly key questions
1 How to use a microscope	**Lesson Objective** To explore the importance of biological sciences and be able to use a microscope to magnify objects, to see in more detail. **Key questions- Main** Can I state some careers and scientific developments in the field of biology? Can I use a microscope safely and magnify objects? Can I label the parts of a microscope and explain what they do? Activity – lesson 1 Careers in biology - https://www.slideserve.com/semah/careers-in-biology-powerpoint-ppt-presentation Discuss the importance of the microscope. What are the smallest objects that the pupils have ever seen images of? Show the pupils the parts of a microscope and demonstrate using the Parts of a Microscope Picture Hotspots. Parts of a Microscope Ask the pupils to label the parts of a microscope on the Activity Sheet. Pupils can peer/self asses their answers afterwards. Lesson 2 Using the Microscope to Observe Objects Demonstrate to the pupils how to use a microscope. Pupils then work in small groups to observe objects or pre-prepared slides through their microscopes. Pupils should draw or describe what they see in the Microscope Observation sheet provided. Bring the class together to discuss any findings, such as difficulties with viewing objects/slides, handy tips for using a microscope. – **Ask Sean!**
2 Animal and plant cells	**Lesson Objective** To identify the function of cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts **Key questions - Main** Can I identify what a cell is? Can I identify the function of different parts of cells? Can I explore the structure and function of plant cells? Can I explore the structure and function of animal cells? Can I compare plant and animal cells? Activity – lesson 1 What is a cell? Powerpoint Plant cell video - https://www.youtube.com/watch?v=XOdK3De8f60 Plant cell structure and function – twinkl interactive Label parts of a plant cell worksheet Lesson 2 Animal cell video – https://www.youtube.com/watch?v=nR-lsNDVhcY

	Animal cell label work sheet – use twinkl hotspots interactive to help Match the cell name to function worksheet Compare plant and animal cells – powerpoint - discuss
3 Unicellular and multicellular organisms	**Lesson Objective** To explore unicellular and multicellular organisms **Key questions – Main** Can I discuss the role of diffusion? Can I identify what makes a unicellular organism? Can I give an example of a unicellular organism? Can I identify what makes a multicellular organism? Can I give an example of a multicellular organism? Activity- lesson 1 Starter – role of diffusion in the movement of materials I and between cells- osmosis - https://www.youtube.com/watch?v=PRi6uHDKeW4 Unicellular organisms – 1 cell– powerpoint – worksheet – complete as a class/small groups Lesson 2 Recap role of diffusion Multicellular organisms –more than one cell -frog, dog, human (start as 1 cell, cell multiplies and splits into different types e.g humans – tissues, tissues organised into organs, organs into organ systems, organ systems create organisms– worksheet – complete as a class/small groups -**make!!!** Discuss unicellular vs multicellular organisms - https://www.youtube.com/watch?v=1hrkwJ_HuR0 – worksheet – make use example saved ^^^^
4 biomechanics	**Lesson Objective** To identify the role of the human skeleton and its interaction with muscles **Key questions - Main** Can I identify the structure and function of the human skeleton? Can I explore the interaction between our skeleton and muscles? Can I discuss the different measurements of force exerted by different muscles? Can I give an example of an antagonistic muscle? Activity lesson 1 Structure and functions of the human skeleton – support, protection, movement and making blood cells Biomechanics – intro into interaction between skeleton and muscles Lesson 2 Recap previous lesson

	Interaction between skeleton and muscle – measurement of force exerted by different muscles – activity Fuction of different muscles – antagonistic muscles
5 Reproduction in humans	**Lesson Objective** To explore how mammals reproduce **Key questions** Can I identify the structure of the male reproductive system? Can I identify the structure of the female reproductive system? Can I explore how an egg is fertilised through to birth? Can I discuss the effects of maternal lifestyle of foetus through the placenta? Activity- lesson 1 Reproduction in humans – mammal Look at structure and function of the male and female reproductive systems – twinkl interactive hot spots Lesson 2 Look at fertilisation of an egg – gametes, fertilisation, gestation, birth Identify impact of maternal lifestyle on foetus through the placenta
6 Reproduction in plants	**Lesson Objective** To explore reproduction within plants **Key questions** Can I identify how plants reproduce? Can I explore the different aspects of reproduction? Can I investigate some dispersal mechanisms? Activity lesson 1 Reproduction in plants – flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal Lesson 2 Investigate some dispersal mechanisms