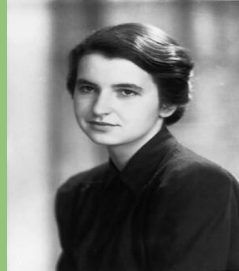


Essential Question: Do all scientists get the recognition they deserve?

What I should already know: Children will have explored the requirements of plants for life and growth (air, light, water, nutrients from soil & room to grow) and how they vary from plant to plant. And investigated the way in which water is transported within plants. They will have explored the part that flowers play in the life cycle of a flowering plant, including pollination, seed formation and seed dispersal. Children know the effects of air resistance, water resistance and friction that act between moving surfaces. They know that living things can be grouped in a variety of ways. Children will have encountered 'people who help us' and know the role of a doctor and a nurse.



William Kamkwamba and his Wind turbine



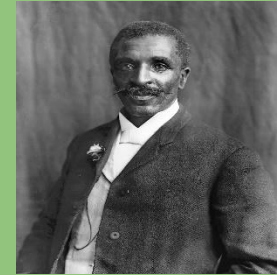
Rosalind Franklin



Mary Eliza Mahoney



Alexander Flemming



Charles Washington Carver

Enquiry Questions

- What is the effect of penicillin on bacteria? (Alexander Flemming)
- How is energy created using wind? (William Kamkwamba)
- Is disability a barrier to scientific discovery? (Stephen Hawking)
- How can we avoid disease and poor growth in vegetables and fruit? (Charles Washington Carver)
- How is DNA constructed? (Rosalind Franklin)

Key Vocabulary

Antibiotic - a medicine (such as penicillin) that inhibits the growth of or destroys microorganisms.
Atoms - the basic building blocks of matter.
DNA (Deoxyribonucleic acid)- the material that carries all the information about how a living thing will look and function. It is a chemical made up of two long molecules, arranged in a spiral
Double helix - the description of the structure of a DNA molecule (see above)
Dynamo-a device that uses the movement of a machine or vehicle to produce electricity.
Force - a push or a pull. Forces can change an object's speed, its direction, and even its shape.
Genes - these carry information for particular characteristics, such as ear shape or eye colour.
Genetics - the study of heredity, or how certain features pass from parents to their offspring, or young.
Hypothesis -a prediction or educated guess that can be tested and can be used to guide further study.
Heredity -the passing of traits (characteristics) from parents to offspring.
Kinetic energy - the energy an object has due to its motion.
Microorganism - living things that are too small to be seen with the naked eye
Molecule - a group of two or more atoms that bond together.
Penicillin - a kind of mold that is used to make medicines.
Staphylococcus - type of bacteria
Variable - anything that can change or be changed ...
Virus - tiny particles that cause disease in people, other animals, and plants. Different viruses cause the common cold, influenza (flu) & chicken pox
Wind energy - electrical energy obtained from harnessing the wind with windmills or wind turbines.
Wind turbine - a device that converts the wind's kinetic energy into elec

Scientific SkillsSkills and KnowledgeWorking Scientifically:

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables.
- Identify scientific evidence that has been used to support or refute ideas or arguments.
- Take measurements using a range of scientific equipment. Take repeat readings where necessary.
- Use test results to make predictions to set up further comparative and fair tests.
- Record data and results of increasing complexity.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms.
- Read, spell and pronounce scientific vocabulary correctly.
- Explore the work of scientists and scientific research.

Fun Facts

Genomics Fun Facts

DNA distance

If all the **DNA** in your cells were laid out in a line, it would reach to the **sun** and back around **70 times**



In the 1930s, penicillin was so precious that it was re-extracted from the urine of patients to conserve every last bit of it.



Variables

INDEPENDENT VARIABLE



What I **CHANGE**

DEPENDENT VARIABLE



What I **OBSERVE**

CONTROLLED VARIABLE

What I **KEEP THE SAME**



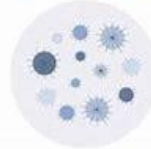
CLASSIFICATION OF MICROORGANISMS



BACTERIA



FUNGI

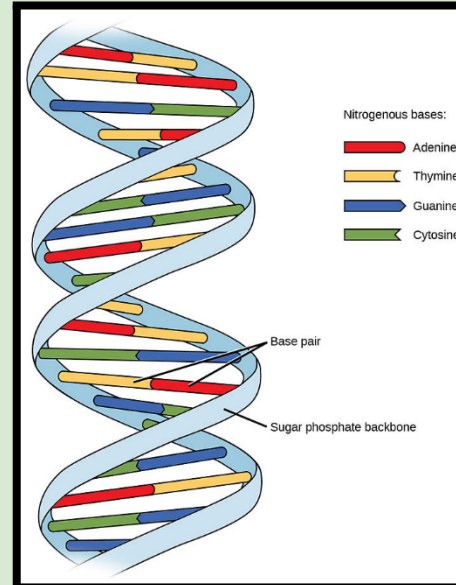


VIRUSES



YEAST

Double Helix



Nitrogenous bases:

- Adenine
- Thymine
- Guanine
- Cytosine

Historical Facts



Crop rotation was already mentioned in the Roman literature, and referred to by great civilizations in Africa and Asia. From the end of the Middle Ages until the 20th century, the three-year rotation was practised by farmers in Europe with a rotation: rye or winter wheat, followed by spring oats or barley, then letting the soil rest (fallow) during the third stage.

Ancient Egyptians practiced crop rotation, where different crop types were grown in different seasons to preserve soil nutrients and maintain fertility levels. Ancient Egyptians recognized the importance of nutrients for plant growth. They used manure and dead plants as fertilizer to enhance the fertility of the soil.

Links to Other Areas of the Curriculum: History - significant figures of the past/farming methods. Geography - locational knowledge. PSHE - how to stay emotionally and physically healthy.