Inventors and Inventions

Rosalind Franklin

W/C: 20th April 2020

Rosalind Franklin was born in the summer of 1920 in London. She showed great talent in maths and science and spoke many different languages. She knew early on that she wanted to be a scientist; however, women were not readily accepted in the field of science. She persevered and helped find the structure of something very important. It all started with "Photograph 51."

Subject: Science

Activity Outcome: Research Rosalind's discovery to answer the questions.

Watch the following clip on YouTube:

www.youtube.com/watch?v=BIP0lYrdirI

Use the following websites:

www.ducksters.com/science/biology/dna.php

www.kids.kiddle.co/DNA

www.famousscientists.org/rosalind-franklin/

www.coolkidfacts.com/rosalind-franklin/

Answer the following questions on Franklin's discovery (see page 2). Choose your own level of difficulty and self-assess your answers at the end

Subject: Art & Design

Activity Outcome: Create your own double-helix DNA model

Follow the instructions on the website to make your own DNA model. The equipment lists are on page 4 of this document. You can use sweets or fruit with toothpicks. Also, you can use pipe cleaners or coloured paper.

Follow the steps carefully and ensure that your four types of chemicals match up.

https://www.wikihow.com/Make-a-Model-of-DNA-Using-Common-Materials

Subject: Science (Inheritance)

Activity Outcome: Create a family tree of inheritance

In science, inheritance refers to the genes that are passed on from parents to offspring. When we refer to inherited characteristics we tend to focus on physical characteristics as these are easy to spot but inherited characteristics include abilities such as taste and smell.

Create a family tree (see template on page 5). Start off with yourself and siblings at the bottom and work you way up to parents/grandparents. Draw pictures of each family member and note their traits (e.g. eye colour and hair colour). With parent permission, you could use this opportunity to phone some members of your family to see how they are!

Subject: History

Activity Outcome: Make your own timeline!

Chronology/chronological understanding = the arrangement of events or dates in the order of their occurrence.

Make your own timeline (see page 6) of Rosalind Franklin's life. Start from her birth in 1920 and put any key dates you can find on the timeline. For example, in May 1952 she took "photograph 51."

Extension—Find another female scientist and complete a timeline about her life. You could choose Mary Leakey, Libbie Hyman or Marie Curie.

★	★★	★★★
1) What is DNA?	1) What is DNA? Draw a diagram to show this.	1) Define and draw a DNA strand. Why is it referred to as a double helix?
2) What are genes?	2) What are genes? How many genes do you have?	2) What are genes? How many genes do you have? Why do they come in pairs?
3) What is a chromosome?	3) What is a chromosome and where is it found?	3) What is a chromosome and where is it found? Does everyone have the same chromosomes?
4) What does inherit mean?	4) What does inherit mean? What are characteristics?	4) Who do you inherit from?

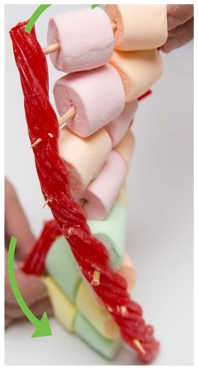
Write answers here

★	★★	★★★
1) What is DNA? A double helix molecule which provides instructions for all the chemical processes required to build an organism.	1) What is DNA? Draw a diagram to show this. (See 1 star)	1) Define and draw a DNA strand. Why is it referred to as a **double** helix? (See 1 and 2 stars) DNA is made up of two strands of **DNA** which bind together to form the **double helix** because of the way each strand is both attracted and repelled by the other strand.
2) What are genes? A short section of the DNA molecule with instructions for a specific trait. They come in pairs.	2) What are genes? How many genes do you have? (See 1 star) You have 23 pairs of genes.	2) What are genes? How many genes do you have? Why do they come in pairs? (See 1 and 2 stars) They come in pairs because you get one from each parent.
3) What is a chromosome? A structure inside the nucleus made up of a tightly coiled DNA molecule.	3) What is a chromosome and where is it found? (See 1 star) The chromosomes are located in the nucleus of the cell. Both plant cells and animal cells have chromosomes within their nucleus, and every chromosome is comprised of a single molecule of deoxyribonucleic acid and proteins.	3) What is a chromosome and where is it found? Does everyone have the same chromosomes? (See 1 and 2 stars) Every man has X and Y chromosome and Y chromosome decides the male sex. Every woman has two X chromosomes.
4) What does inherit mean? The way information about a trait or characteristic is passed from one person to their offspring.	4) What does inherit mean? What are characteristics? (See 1 star) A trait or feature about an organism. For example, hair colour or eye colour	4) Who do you inherit from? You are a diploid organism, meaning that you received one set of genes (called alleles) from your father and the other set of alleles from your mother. The combination of these pairs of genes that you've inherited is called your genotype.

Equipment list for DNA models

There are many ways you can do this…

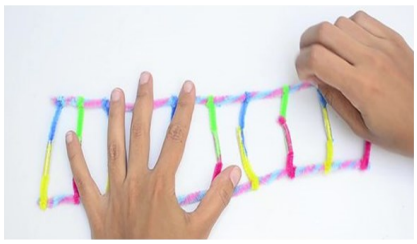
Sweets or fruit



Equipment:

- Laces or liquorice
- Marshmallows or coloured sweets / fruit
- Toothpicks

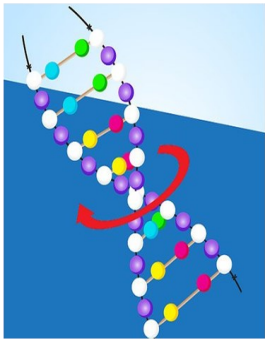
Pipe cleaners



Equipment:

- Minimum of 6 different coloured pipe cleaners

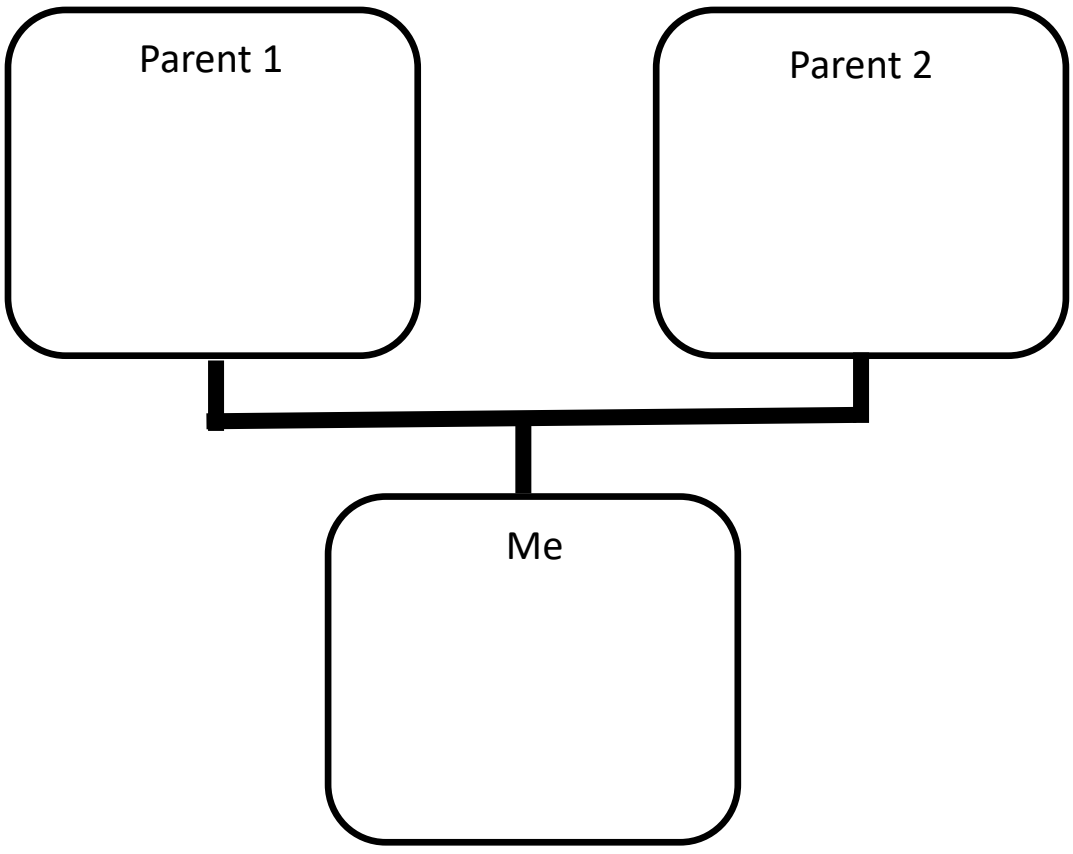
Beads



Equipment:

- Styrofoam balls
- Needle and thread
- Paint
- Toothpicks

My Inheritance family tree



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