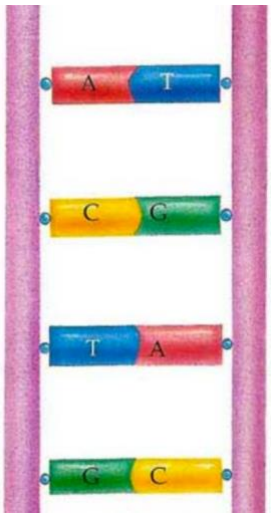
INHERITANCE:
DNA, GENES and MUTATIONS.

- One of our most popular workshops, introduces Primary School children to the biology of DNA and genes.
- We have carried out this workshop in the classroom (P4-P5). It can be adapted for older children.

What we are going to learn:

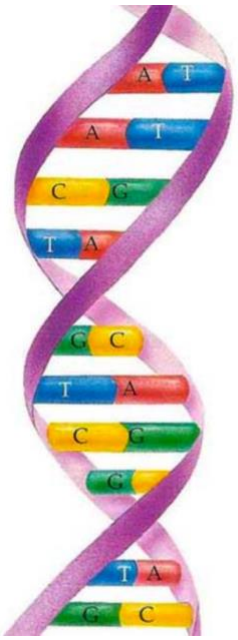
- **What is DNA?**
  - **DNA** is a chemical that contains all the information required to make you! We are all different because we have our own different **DNA**.
  - **DNA (DeoxyriboNucleic Acid).** It is made up of four different "blocks" **(A-T-G-C)** called **bases.**
  - The shape of **DNA** is like a ladder. Each step of the ladder is formed by two **bases**.
  - The **bases** are shaped to fit each other like the pieces in a jigsaw puzzle:
    - **A** always fits **T.**
    - **G** always fits **C.**



- The information is contained in the order of the bases (**sequence**). This is called the **genetic code.** There are around 3 billion bases in one of your DNA molecules.

- **Where do we find DNA?**
  - In every cell of your body (except red blood cells).

- **How does it look like?**
  - The DNA ladder twists to form a **double helix**!



- **What is a mutation?**
  - A **mutation** is a change in your DNA. Sometimes mutations make the information of the DNA change.

- **THE WORKSHOP: SWEET DNA.**
- **Materials (per child):**
  - Liquorice wheels to make the double helix.
  - Jelly bears of four different colours to represent the four different kinds of bases **(A-T-G-C)**.
  - Cocktail sticks to make the steps of the ladder.

- Minimarshmallows representing the phosphate groups.
- A sweet pencil to hold the structure.

1.- Introduction to DNA: one of our staff (or the class teacher) gives a very brief introductory talk to the activity. The children learn about the genetic code and how the base pairs are required to build the double helix.

2.- Make your own DNA: the children receive a bag containing all the ingredients to make their own DNA molecule out of sweets.

BENCHMARKS: Suggested links

EARLY LEVEL:

Inquiry and investigative skills

- Explores and observes through play.
- Asks questions arising from play activities.
- Makes simple predictions of what might happen.
- Makes suggestions about what to do to answer the selected question.

FIRST LEVEL:

Curriculum Organisers:
<u>Inheritance</u>

Experiences and Outcomes for planning learning, teaching and assessment:

By comparing generations of families of humans, plants and animals, I can begin to understand how characteristics are inherited.

Benchmarks to support practitioners' professional judgement:

- Uses their own experiences to illustrate how inherited characteristics are passed from one generation to the next.
- Knows that genetic information determines characteristics such as colour of eyes and shape of petals.
- Demonstrates understanding of the variations within family groups.

SECOND LEVEL

Curriculum Organisers:
<u>Inheritance</u>

Experiences and Outcomes for planning learning, teaching and assessment:

- By exploring the characteristics offspring inherit when living things reproduce, I can distinguish between inherited and non-inherited characteristics.

Benchmarks to support practitioners' professional judgement:

- Knows that genetics is the study of inherited characteristics and that inherited characteristics are carried on genes and can sometime skip a generation.
- Explores and categorises characteristics into inherited (eye and hair colour, height and right/left handedness) and non-inherited (native language spoken and favourite colour).
- Describes how every living thing has its own DNA fingerprint.