D&T Y3 - Building a pyramid

In this unit of work children will investigate the construction of the first pyramids and evaluating their effectiveness. They will understand how key events and individuals in D&T have helped shape the Technical world. They will construct their own pyramids from a variety of materials, evaluating which is best for the job. They will incorporate both a mechanical and electrical system in their ultimate pyramid and evaluate its strength and effectiveness.

In this unit children will:

Research the first pyramids, both including where they were built and who designed them. Look at the way they were designed and evaluate it.

Generate ideas on how to build their own pyramid using their research. Plan their ideas and use a variety of materials to make pyramids out of e.g. sugar cubes, lego, card, wooden blocks; evaluating their strength and effectiveness.

Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement and electrical circuits use buzzers and bulbs. Investigate each type of system.

Incorporate a mechanical system to create movement and an electrical circuit into their design

Evaluate their best mock up pyramid - which material was the best? Which structure held up the best? Which mechanical and electrical systems were the most effective?

Build their ultimate pyramid and evaluate their end structure

Prior Learning

EYFS - Select materials from a limited range, developing their ideas through talk and simple drawings. Build structures joining components.
Year 1 - Explain what objects have been made for, how they work and what materials have been used.Begin to build structures, exploring how they can be made stronger, more stable and stiffer. Evaluate their design.
Year 2 - Identify a purpose for what they intend to design and make and develop their ideas through talk and labelled drawings. Make a mock up of designs, exploring how they can be made stronger. Assemble, join and combine materials to make a product and evaluate their design

Cross Curricular Links

History - Ancient Egypt

Key Vocabulary

Imhotep - The Pharaoh Djoser's architect who designed the first step pyramid in Egypt in 2630 - 2611 BC
Step Pyramid - Pyramids with large ledges every so often which looks like giant steps.
Pharaoh - Another name for any type of the Kings who ruled Ancient Egypt
Pyramid - A tomb that the Ancient Egyptians built for the Pharaoh
Pyramidion - A small pyramid on top of a larger pyramid sometimes covered in gold
Giza - A place where several large pyramids and the Great Sphinx were built
Masonry - Brick materials
Triangulation - The use of triangular shapes to strengthen a structure
Existing - Something that has already been designed and made
Components - The parts something is made up from
Pulley - A wheel with a grooved rim around which a cord passes, which acts to change the direction of a force applied to the cord and is used to raise heavy weights
Lever - A **lever** is a long, sturdy body that rests on a support called a fulcrum. The fulcrum is the place where the **lever** pivots. It is one of the three parts or actions that work together in a **lever**.
Circuit - A **circuit** is a complete path around which **electricity** can flow. It must include a source of **electricity**, such as a battery.

Key Knowledge

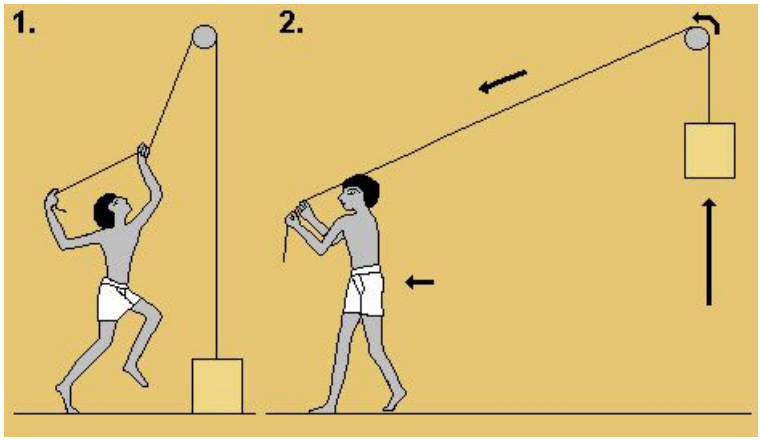
The Great **Pyramid** of Cholula, also known as Tlachihualtepetl (Nahuatl for "made-by-hand mountain"), is a huge complex located in Cholula, Puebla, Mexico. It is the **largest** archaeological site of a **pyramid** (temple) in the New **World**, as well as the **largest pyramid** by volume known to exist in the **world** today.

The **Pyramid of Djoser** is the first Egyptian pyramid and despite claims of older pyramids being found in recent years, it is the oldest confirmed pyramid in the world. The pyramid was built for Djoser (sometimes spelled Zoser), the first king of the Third Dynasty of Egypt, by Imohtep, **Djoser's** vizier.

The **ancient Egyptians** who **built the Pyramids** of Giza, **built** between 2589 and 2504 BC, moved massive stone blocks across the desert by wetting the sand in front of a contraption **built** to pull the heavy objects, according to a new study.

In Egypt the pyramids were built because the Egyptians believed that if the Pharaoh's body could be mummified after death, the pharaoh would live forever. The tombs were designed to protect the buries Pharaoh's body and his belongings.

In Egypt the Great Pyramid is the largest and most famous of the pyramids. It was built for the is over 140 metres high



Key Questions

Where were the largest largest pyramids built?

Why were the early pyramids built with steps?

What was the name of the Architect who designed the first pyramid?

How can you make a pyramid strong and stable?

How effective is your mechanical system?