

# Year 4 Knowledge Organiser: *Gizmos and Gadgets*

Cross-curricular subject links: **Computing, Maths and Science.**

Curriculum Driver: **Awesome Memories, Discovery**

Trips/Enrichment: Nottingham Contemporary Art Gallery

**GARP/GASP:** Inventions from around the world and how they have helped communities. Communities that restrict modern day technology.

## Subject/Conceptual knowledge/skills:

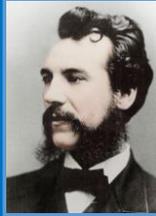
Knowledge of people and change in the past, information technology, making and technical knowledge.

## LEAPS

### History

- I understand how some of the past events/people affect life today.
- I can understand changes that have happened in different time periods.
- I can recognise some of the similarities and differences between these periods.
- I can describe the main events and people related to the period studied.
- I understand how some of the past events/people affect life today.

## Core Knowledge



**Alexander Graham Bell** was born in Edinburgh on March 3rd, 1847.

He became a teacher for the deaf in the USA. He experimented with transmitting speech: sending sound from one place to another.

By **1875**, **Alexander Bell**, with the help of his partner **Thomas Watson**, had come up with a **simple receiver that could turn electricity into sound.**

On **March 10th, 1876**, the invention worked!

**Alexander Graham Bell invented the telephone at the age of 29!**

He died in **Canada** on August 4th, 1922

Alexander Graham Bell's invention, the telephone, forever changed the way humans communicate with each other. The telephone saved time as people didn't need to travel to see each other to communicate. People were able to communicate over long distances.

**Thomas Alva Edison** was business man and an inventor who was born on **February 11, 1847**, in Milan, Ohio. He experienced hearing loss at an early age. Thomas was good at sending and taking messages in Morse code, which was an important way of communicating at the time. His best known inventions are the **record player** and the **light bulb.**



**Did you know that the use of electricity is strongly avoided in the Amish community?** The Amish community have their own way of life and believe in living within their own community. They do not have modern technology in their homes, they work on the land or in the home and they rarely leave their home communities. Some Amish communities have access to basic use of electricity such as battery power for the lights on their buggies. The ownership of telephones is forbidden, however Amish people can use them.

Vocabulary	
Words	Meaning
<b>Invention</b>	A new idea or creation.
<b>Telephone</b>	A device that allows people to communicate.
<b>Electricity</b>	A form of energy.
<b>Light bulb</b>	An electrical component that creates light.
<b>Transmit</b>	1) To broadcast or send an electrical signal or radio/television programme signal. 2) cause (something) to pass on from one person or place to another
<b>Communication</b>	The act of giving, receiving, and sharing information
<b>Timeline</b>	A line that shows a series of events in chronological order.
<b>Chronological</b>	In order of time.
<b>Significant events</b>	Events that had an important role to play in the world.



## Books/Associated reading:



## QUIZ



- 1) What is the design process?
- 2) Tell me about the design process for an invention.
- 3) Tell me about a community that has different beliefs about using technology.

- 4) Tell me about people from the past that have affected the lives of people today.
- 5) How did the invention of the internet affect the telephone?
- 6) Why did Alexander Bell accept help from Thomas Edison?

- 7) Which telephone would you like to have in your house and why?
- 8) Compare a smartphone to a rotary dial phone.
- 9) Tell me about a significant event that changed the way people communicate.

### Subject/Conceptual knowledge/skills:

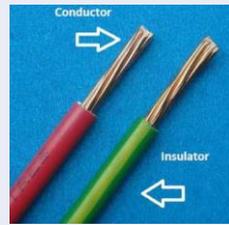
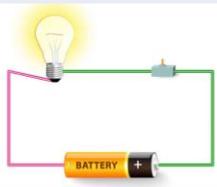
Electricity

#### LEAPS:

- I can identify common appliances that run on electricity.
- I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
- I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- I can recognise some common conductors and insulators, and associate metals with being good conductors.
- I can draw simple series circuits as a pictorial representation.

### Core Knowledge

Electricity is a form of energy transferred through conductors. Conductors are materials that electricity can pass through, such as metal and water.



A circuit is a connected loop of conductive material, such as metal wire, that has a power source and an electrical component like a light bulb. An insulator is a material that does not allow electricity to travel through, such as rubber or wood.

#### Subject Key Vocabulary

Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol

### Subject/Conceptual knowledge/skills:

Islam (The Qur'an)

How does the Qur'an influence Muslims today?

#### LEAPS:

- I can explain something I have learnt from a book that has helped me.
- I can explain why the Qur'an is important to Muslims and some actions they take to show this.
- I can consider some actions a Muslim could take to follow the teachings in the Qur'an.

### Core Knowledge

For Muslims, the Qur'an is the word of God, Allah. The Qur'an is a highly respected book and Muslims usually perform 'wudu', a ritual washing of the face, hands and feet before reading it, and keep it wrapped in cloth when it is not being used. The Qur'an should be stored higher than any other book in the room to show respect.

The Qur'an was revealed to Muhammad over a period of 23 years. The first instruction the Angel Jibril gave was for Muhammad to recite. This means that all Muslims have followed in his footsteps and recite passages from the Qur'an. Passages from the Qur'an are recited as part of prayer and worship and all Muslims are expected to learn passages from the Qur'an.

#### Subject Key Vocabulary

Allah, Judgement, Akhirah, Afterlife

### Subject/Conceptual knowledge/skills:

PSHE - SCARF

Being My Best,  
Safeguarding, Body Image,  
Community, Environment

#### LEAPS:

- Identify ways in which everyone is unique;
- Appreciate their own uniqueness;
- Recognise that there are times when they will make the same choices as their friends and times when they will choose differently.
- Give examples of choices they make for themselves and choices others make for them;
- Recognise that there are times when they will make the same choices as their friends and times when they will choose differently.
- Plan a menu which gives a healthy balanced of foods from across the food groups on the **Eatwell Guide** (formerly Eatwell Plate).
- Understand the ways in which they can contribute to the care of the environment (using some or all of the seven Rs);
- Suggest ways the Seven Rs recycling methods can be applied to different scenarios.
- Define what is meant by the word 'community';
- Suggest ways in which different people support the school community;
- Identify qualities and attributes of people who support the school community

### Core Knowledge

Everyone is unique because no one person is the same. Everyone is different. Everyone has the right to make their own decisions.

A balanced diet consists of foods a human should consume to stay healthy.



Fruit and vegetables, carbohydrates, dairy, fats and sugars and protein.

The environment is the area around us, outdoors and inside. Recycling is the act of using materials again for a different purpose. E.g. Using bottle caps for making drinks bottles. The local community is a collection of people who reside in the same area as you.

#### Subject Key Vocabulary

Unique, health, eat well guide

**Subject/Conceptual knowledge/skills:**

Tennis - Striking and Fielding

Football - Invasion Game

**LEAPS:**

Tennis:

- I can take part in competitive games with a strong understanding of tactics and composition.
- I can make suggestions as to what resources can be used to differentiate a game.
- I can challenge myself to improve the consistency of shots.
- I can demonstrate a arrange of ways to send the ball.
- I can demonstrate the correct position to move, send and receive the ball.
- I can demonstrate forehand and backhand shots.
- I can vary skills, actions and ideas and link these in ways that suit the games activity.

Football:

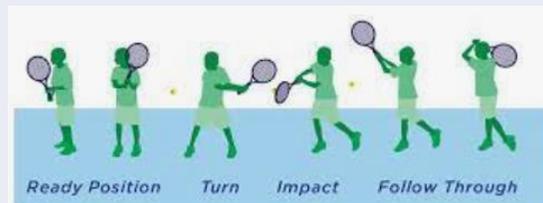
- I can vary skills, actions and ideas and link these in ways that suit a range of games.
- I can confidently demonstrate a range of ball skills and can link these together.
- I can apply and demonstrate co-ordination, control and fluency skills.
- I can take part in a range of invasion/competitive games with a strong understanding of tactics and composition
- I can confidently create my own games using knowledge and skills.
- I can accurately apply basic skills for attacking and defending.
- I can refine and adapt skills into technique.

**Core Knowledge**

In Tennis, the aim of the game is to score points against an opponent by hitting the tennis ball back and forth until one of the players makes a mistake. A mistake can be missing the ball, hitting the ball too far out of the court or allowing the ball to bounce more than once. In tennis, the players use a tennis racket.



Serena Williams is a female American tennis player who is ranked no.1 in the sport.



**Core Knowledge**

Football is a game in which players use their feet to move a ball around the pitch and place into a goal to score.

Football is played on a pitch with two halves, for 90 minutes. 11 players make up a team including one goalkeeper per team. The goal keeper can use their hands with the ball, but only in the penalty area.

**Subject Key Vocabulary**

Tennis - send/receive, strike, forehand shot, backhand shot, court, competitive, strategy, technique, position, co-ordinate, tactic

Football, Tactic, Technique, Cooperative physical activity, Core movement, Strategy, Invasion game, Striking, Control, Fielding, Attacking, Defending

**Subject/Conceptual knowledge/skills:**

Computer Science

**LEAPS: iProgram Unit 2**

- I know that robots have moving parts and can be programmed to follow instructions.
- I know that sequences of commands can be replaced with repeats.
- I know that robots can be programmed to respond to sensory data.

**Core Knowledge**

Robots cannot think on their own. They must be given instructions by a computing software or language. A human must input the data for a robot or computer program to achieve a task. Sequences are a list of commands that are completed one after another.

**Subject Key Vocabulary**

Sprite, blocks, programming, coordinates, up, down, right, left, if (conditional statement), x, y, axis, sequence animate, loop, repeat, import, record, condition, robot, execute, if, then, else, true, false

**Subject/Conceptual knowledge/skills:** Speaking, Listening, Reading, Grammar

**LEAPS:**

- I can listen for and identify specific words and phrases in instructions, stories and songs.
- I can listen for and identify specific words and phrases in instructions, stories and songs.
- I can accurately read and understand familiar written words, phrases and short sentences
- I understand the concept of gender (masculine, feminine, neuter -if applicable) and which article (definite or indefinite) to use correctly with different nouns.

**Subject Key Vocabulary**

Un bâton de colle = a glue stick  
 Un livre = a reading book  
 Un cahier = an exercise book  
 Un crayon = a pencil  
 Un taille crayon = a pencil sharpener  
 Un stylo = a pen  
 Une calculatrice = a calculator  
 Une règle = a ruler  
 Une gomme = a rubber / eraser  
 Une trousse = a pencil case  
 Des ciseaux = scissors  
 J'ai = I have.....  
 Je n'ai pas de = I have not got / I do not have....  
 Qu'est ce qu'il y a dans ta trousse? = What do you have in your pencil case?  
 Dans ma trousse j'ai... = In my pencil case I have...  
 Dans ma trousse je n'ai pas de... = In my pencil case I do not have