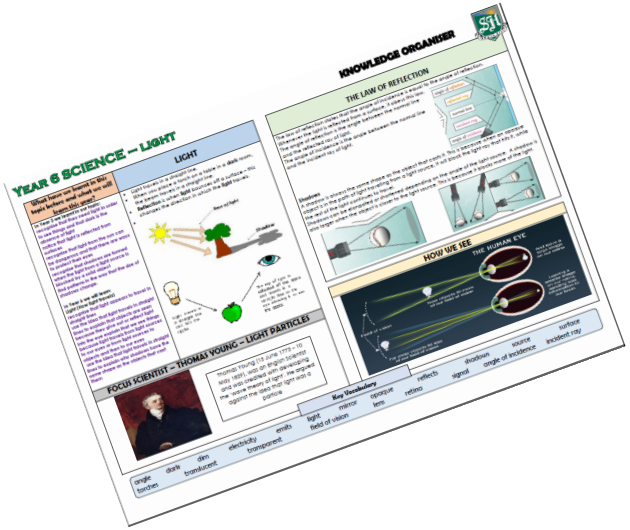
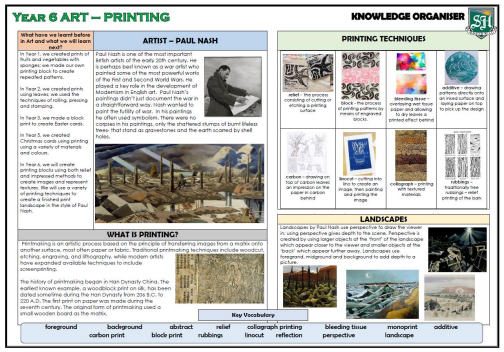
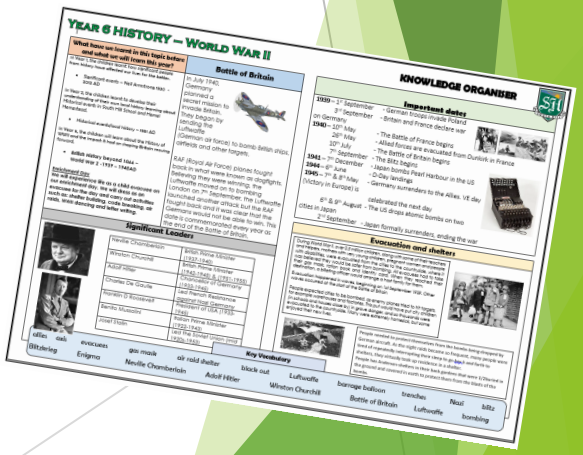
Year 6 Knowledge Organisers

At South Hill, we have created ‘Knowledge Organisers’ to help pupils and parents to know what the children will be learning in each of our Foundation subjects. These contain essential vocabulary and facts for each topic.

Please see ‘Knowledge Organisers’ attached for Year 6 for the autumn term, which will also be in pupil’s books and on working walls in school.







Year 6 Science - Autumn 1

YEAR 6 SCIENCE—ELECTRICITY

KNOWLEDGE ORGANISER

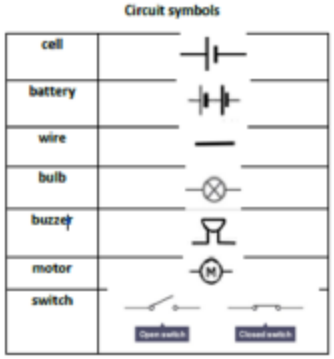
What have we learnt in this topic before and what we will learn this year?	CIRCUITS
In Year 4 we learnt in our topic: Electricity (Circuits and Components) identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 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 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors. In Year 6 we will learn: Electricity (Changing circuits and symbols) associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches	**Create a circuit for a burglar alarm:** • Draw a complete circuit that includes a switch and a buzzer • Create a circuit from their plan. • Test their circuit to see if it works and troubleshoot any issues. **Create an electric game:** • Using conductive materials, children will create an electric loop game. • Children will test that their circuits work by playing the game and evaluate where to improve

FOCUS SCIENTIST—NICHOLAS TESLA

Nicholas Tesla was a Serbian-American engineer and physicist. He invented the first alternating current (AC) motor and developed AC generation and transmission technology. He worked for Thomas Edison when he first moved to New York.

CIRCUIT SYMBOLS

- We use scientific symbols to represent the components (parts) of a circuit.
- The brightness of a bulb or the loudness of a buzzer is affected by the number of cells in a circuit.
- The brightness of a bulb or the loudness of a buzzer is affected by the voltage of cells in a circuit.
- The number of components in a circuit can affect how they function.
- The arrangement of components in a circuit can affect how they function.
- The length of wires in a circuit can affect how they components function.



Buzzers and bulbs	Compare and contrast circuit
What will make a bulb brighter or a buzzer louder? More batteries or a higher voltage will create more power to flow through the circuit. Shortening the wires means the electrons have less resistance to travel through. **What will make a bulb dimmer or a buzzer quieter?** Fewer batteries or a lower voltage give less power to the circuit. More buzzers or bulbs mean the power is shared by more components. Lengthening the wires means the electrons have to travel through more resistance.	**Why do we use symbols for circuits?** Circuit drawings and symbols are plan to follow, symbols are used for ease and clarity. **How do actual circuit boards differ from drawings?** Children to investigate real electric appliances (taken apart) to look at how actual circuits differ from drawings and draw conclusions as to why they are simplified. Draw their own circuit based on an actual appliance to understand the differences.

Key Vocabulary
circuit circuit symbol circuit diagram cell battery switch voltage amp component bulb motor current filament buzzer

Year 6 Science - Autumn 2

YEAR 6 SCIENCE – LIGHT

KNOWLEDGE ORGANISER

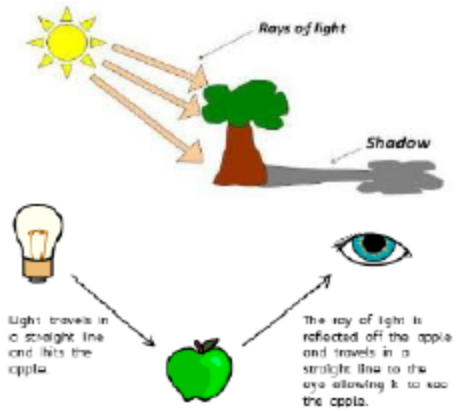
What have we learnt in this topic before and what we will learn this year?

In Year 3 we learnt in our topic:
recognise that they need light in order to see things and that dark is the absence of light
notice that light is reflected from surfaces
recognise that light from the sun can be dangerous and that there are ways to protect their eyes
recognise that shadows are formed when the light from a light source is blocked by a solid object
find patterns in the way that the size of shadows change.

In Year 6 we will learn:
Light (How light travels)
recognise that light appears to travel in straight lines
use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

LIGHT

- Light travels in a straight line.
- When you place a torch on a table in a **dark** room, the beam travels in a straight line.
- **Reflection** is when **light** bounces off a surface – this changes the direction in which the **light** travels.

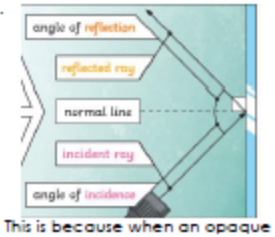


FOCUS SCIENTIST – THOMAS YOUNG – LIGHT PARTICLES

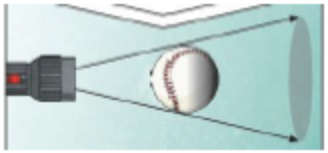
Thomas Young (13 June 1773 – 10 May 1829), was an English Scientist and was credited with developing the 'wave theory of light'. He argued against the idea that light was a particle

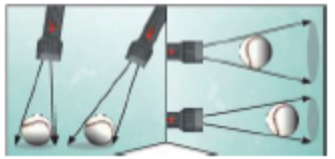
THE LAW OF REFLECTION

The law of reflection states that the angle of incidence is equal to the angle of reflection.
Whenever the light is reflected from a surface, it obeys this law.
The angle of reflection is the angle between the normal line and the reflected ray of light.
The angle of incidence is the angle between the normal line and the incident ray of light.

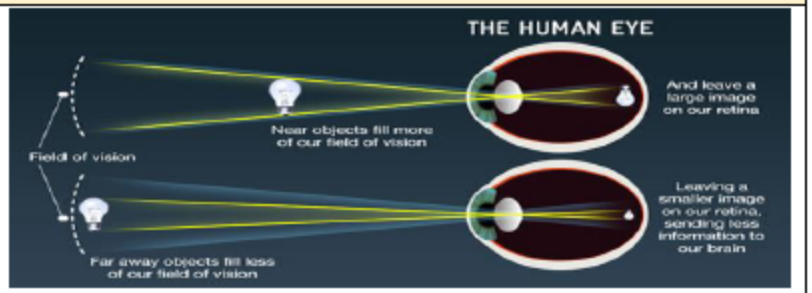


Shadows
A shadow is always the same shape as the object that casts it. This is because when an opaque object is in the path of light travelling from a light source, it will block the light ray that hits it, while the rest of the light continues to travel.
Shadows can be elongated or shortened depending on the angle of the light source. A shadow is also larger when the object is closer to the light source. This is because it blocks more of the light.





HOW WE SEE



Key Vocabulary

angle, dark, dim, electricity, emits, light, mirror, opaque, reflects, shadows, source, surface, torches, translucent, transparent, field of vision, lens, retina, signal, angle of incidence, incident ray

Year 6 History - Autumn 1

YEAR 6 HISTORY – WORLD WAR II

KNOWLEDGE ORGANISER

What have we learnt in this topic before and what we will learn this year?

In Year 1, the children learnt how significant people from history have affected our lives for the better.

- Significant events – Neil Armstrong 1930 - 2012 AD

In Year 2, the children learnt to develop their understanding of their own local history learning about Historical events in South Hill School and Hemel Hempstead.

- Historical events/local history – 1951 AD

In Year 6, the children will learn about the History of WWII and the impact it had on shaping Britain moving forward.

- **British History beyond 1066 – World War 2 -1939 – 1945AD**

Enrichment Day

We will experience life as a child evacuee on our enrichment day. We will dress as an evacuee for the day and carry out activities such as: shelter building, code breaking, air raids, WWII dancing and letter writing.

Battle of Britain

In July 1940, Germany planned a secret mission to invade Britain. They began by sending the Luftwaffe (German air force) to bomb British ships, airfields and other targets.

RAF (Royal Air Force) planes fought back in what were known as dogfights. Believing they were winning, the Luftwaffe moved on to bombing London on 7th September, the Luftwaffe launched another attack but the RAF fought back and it was clear that the Germans would not be able to win. This date is commemorated every year as the end of the Battle of Britain.

Significant Leaders

Neville Chamberlain	British Prime Minister (1937-1940)
Winston Churchill	British Prime Minister (1942-1945) & (1951-1955)
Adolf Hitler	Chancellor of Germany (1933-1945)
Charles De Gaulle	Led French Resistance against Nazi Germany
Franklin D Roosevelt	President of USA (1933-1945)
Benito Mussolini	Italian Prime Minister (1922-1943)
Josef Stalin	Led the Soviet Union (mid 1920s-1953)

Important dates

1939 – 1st September - German troops invade Poland
3rd September - Britain and France declare war on Germany
1940 – 10th May - The Battle of France begins
26th May - Allied forces are evacuated from Dunkirk in France
10th July - The Battle of Britain begins
7th September - The Blitz begins
1941 – 7th December - Japan bombs Pearl Harbour in the US
1944 – 6th June - D-Day landings
1945 – 7th & 8th May - Germany surrenders to the Allies. VE day (Victory in Europe) is celebrated the next day
6th & 9th August - The US drops atomic bombs on two cities in Japan
2nd September - Japan formally surrenders, ending the war

Evacuation and shelters

During World War II, over 3.5 million children, along with some of their teachers and helpers, mothers with very young children, pregnant women and people with disabilities, were evacuated from the cities to the countryside, where it was believed they would be safer from bombing. All evacuees had to take their gas mask, ration book and identity card. When they reached their destination, a billeting officer would arrange a host family for them.

Evacuation happened in waves, beginning on 1st September 1939. Other waves occurred at the start of the Battle of Britain

People expected cities to be bombed, as enemy planes tried to hit targets, for example warehouses and factories. This put would have put city children (in schools and houses close by) in grave danger, and so thousands were evacuated to the countryside. Many were extremely homesick, but some enjoyed their new lives.

People needed to protect themselves from the bombs being dropped by German aircraft. As the night raids became so frequent, many people were tired of repeatedly interrupting their sleep to go back and forth to shelters, they virtually took up residence in a shelter.
People has Anderson shelters in their back gardens that were 1/2buried in the ground and covered in earth to protect them from the blasts of the bombs.

Key Vocabulary

allies axis evacuees gas mask air raid shelter black out Luftwaffe barrage balloon trenches Nazi blitz
Blitzkrieg Enigma Neville Chamberlain Adolf Hitler Winston Churchill Battle of Britain Luftwaffe bombing

Year 6 History - Autumn 2

YEAR 6 HISTORY – WORLD WAR II

KNOWLEDGE ORGANISER

What have we learnt in this topic before and what we will learn this year?

In Year 1, the children learnt how significant people from history have affected our lives for the better.

- Significant events – Neil Armstrong 1930 - 2012 AD

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- Historical events/local history – 1951 AD

In Year 6, the children will learn about the History of WWII and the impact it had on shaping Britain moving forward.

- British History beyond 1066 – World War 2 -1939 – 1945AD

Enrichment Day
We will go to the RAF Museum, Hendon, for the day. We will dress as an evacuee for the day and find out about the planes of WWII. We will have a workshop about life in WWII while at the museum.

THE HOLOCAUST

The Holocaust is the term for the killing of over six million Jewish people before and during World War II, organised by Adolf Hitler and the Nazi party. Even before the war, they wanted to blame the Jews for the problems in Germany and used propaganda to promote widespread public hatred of them. Jewish people were openly bullied, persecuted, abused and discriminated against.

Many Jews were sent to concentration camps where they were forced to work like slaves. Many died through infection, starvation or exhaustion. Others were sent to death camps where they were killed in gas chambers. This form of mass killing is called genocide.

WOMEN AT WAR

With men away at war, women took on important jobs to help the war effort.

Jobs included:

- working in factories
- making weapons
- engineering
- shipbuilding
- Driving ambulances
- Driving buses and trains
- Nursing
- working as Land Girls
- Air-raid wardens
- joining the armed forces

Although women were able to join the armed forces and trained for fighting, they never actually fought on the front line and were not paid equally compared to men. After the war, many women lost their jobs. However, their experiences led them to campaign for equal working rights and pay so that they could carry on leading more independent lives.

PLANES OF WWII


Boeing B-17 Flying fortress


Supermarine Spitfire


North American Mustang


Hawker Hurricane


de Havilland Mosquito


Avro Lancaster


Kittyhawk


Messerschmitt BF 109

RATIONING

Supply ships were targeted by German bombers and it was necessary to conserve as much food as possible. Rationing meant that each person was only allowed a fixed amount of foods. Ration books were issued, with coupons that showed people how much of each item they were allowed. Shopkeepers would remove or stamp the coupons when they were used. People were also encouraged to 'Dig for Victory' and grow as much of their own food as possible.

Petrol, soap, clothing and timber were also in short supply. Clothing ration books were issued and people were encouraged to 'make do and mend'.

Key Vocabulary

propaganda, women, active service, rationing, Nazi, Jew, holocaust, Adolf Hilter, Spitfire, Mustang, Lancaster, Mosquito, Kittyhawk, Messerschmitt, Hurricane, Flying fortress, Holocaust, Ration books, wardens

Year 6 Art - Autumn 1

YEAR 6 ART – PRINTING

KNOWLEDGE ORGANISER

What have we learnt before in Art and what we will learn next?

In Year 1, we created prints of fruits and vegetables with sponges; we made our own printing block to create repeated patterns.

In Year 2, we created prints using leaves; we used the techniques of rolling, pressing and stamping.

In Year 3, we made a block print to create Easter cards.

In Year 5, we created Christmas cards using printing using a variety of materials and colours.

In Year 6, we will create printing blocks using both relief and impressed methods to create images and represent textures. We will use a variety of printing techniques to create a finished print landscape in the style of Paul Nash.

ARTIST – PAUL NASH

Paul Nash is one of the most important British artists of the early 20th century. He is perhaps best known as a war artist who painted some of the most powerful works of the First and Second World Wars. He played a key role in the development of Modernism in English art. Paul Nash's paintings didn't just document the war in a straightforward way. Nash wanted to paint the futility of war. In his paintings he often used symbolism. There were no corpses in his paintings, only the shattered stumps of burnt lifeless trees- that stand as gravestones and the earth scarred by shell holes.

WHAT IS PRINTING?

Printmaking is an artistic process based on the principle of transferring images from a matrix onto another surface, most often paper or fabric. Traditional printmaking techniques include woodcut, etching, engraving, and lithography, while modern artists have expanded available techniques to include screenprinting.

The history of printmaking began in Han Dynasty China. The earliest known example, a woodblock print on silk, has been dated sometime during the Han Dynasty from 206 B.C. to 220 A.D. The first print on paper was made during the seventh century. The original form of printmaking used a small wooden board as the matrix.

PRINTING TECHNIQUES

relief - the process consisting of cutting or etching a printing surface

block - the process of printing patterns by means of engraved blocks.

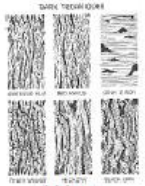
bleeding tissue – overlaying wet tissue paper and allowing to dry leaves a printed effect behind

additive – drawing patterns directly onto an inked surface and laying paper on top to pick up the design

carbon – drawing on top of carbon leaves an impression on the paper in carbon behind

linocut – cutting into lino to create an image, then painting and printing the image

collagraph – printing with textured materials



rubbings – traditionally tree rubbings – relief printing of the bark

LANDSCAPES

Landscapes by Paul Nash use perspective to draw the viewer in; using perspective gives depth to the scene. Perspective is created by using larger objects at the 'front' of the landscape which appear closer to the viewer and smaller objects at the 'back' which appear further away. Landscapes use foregrand, midground and background to add depth to a picture.

Key Vocabulary

foreground, background, abstract, relief, collagraph printing, bleeding tissue, monoprint, additive, carbon print, block print, rubbings, linocut, reflection, perspective, landscape

Year 6 DT - Autumn 2

YEAR 6 DT – ANDERSON SHELTER

KNOWLEDGE ORGANISER

What have we learnt before in DT and what we will learn next?
In Year 2, through our topic 'Construction/Use of Materials' we designed and made our own emergency vehicles. In Year 4, we will design and construct our own torch. In Year 5, we will extend our skills through our topic 'Electrical and Mechanical components' by incorporating hydraulics and pneumatics. In Year 6, we will extend our understanding of 'Electrical and Mechanical components' by designing and creating our own circuits for our Anderson Shelters.

SIR JOHN ANDERSON

John Anderson, the son of a publisher, was born in Edinburgh on 8th July 1882. After studying at Edinburgh University and the University of Leipzig he entered the Colonial Office in 1905

Anderson was later posted to Ireland where he served as joint undersecretary. In 1922, he was promoted to permanent undersecretary at the Home Office. In 1926, he was chairman of the committee that dealt with the problems caused by the General Strike. In 1932 he was appointed governor of Bengal in India.

After returning to Britain in 1938, Anderson was elected to the House of Commons. In November 1938, Neville Chamberlain placed Anderson in charge of the Air Raid Precautions (ARP). He immediately commissioned the engineer, William Patterson, to design a small and cheap shelter that could be erected in people's gardens.

Within a few months nearly one and a half milion of these Anderson Shelters were distributed to people living in areas expected to be bombed by the Luftwaffe. Made from six curved sheets bolted together at the top, with steel plates at either end, and measuring 6ft 6in by 4ft 6in (1.95m by 1.35m) the shelter could accommodate six people. These shelters were half buried in the ground with earth heaped on top. The entrance was protected by a steel shield and an earthen blast wall.

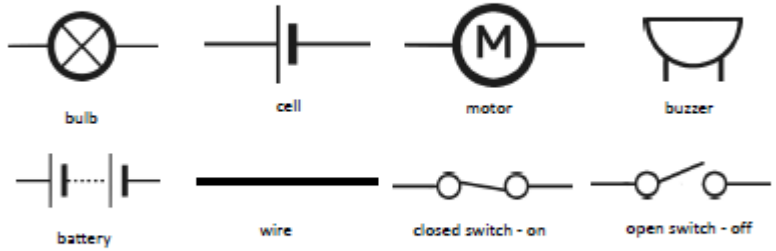
Anderson shelters were given free to poor people. Men who earned more than £5 a week could buy one for £7. Soon after the outbreak of the Second World War in September 1939, over 2 million families had shelters in their garden. By the time of the Blitz this had risen to two and a quarter million.

Anderson Shelters

Anderson commissioned the engineer William Patterson to design a small and cheap shelter that could be erected in people's gardens. The first 'Anderson' shelter was erected in a garden in Islington, London on 25 February 1939 and, between then and the outbreak of the war in September, around 1.5 million shelters were distributed to people living in areas expected to be bombed by the Luftwaffe. During the war a further 2.1 million were erected. Anderson shelters were issued free to all householders who earned less than £250 a year, and those with higher incomes were charged £7. (The equivalent figures would be around £17,000 and £470 in 2020.)

Made from six curved sheets bolted together at the top, with steel plates at either end, and measuring 1.95m by 1.35m, the shelter could accommodate four adults and two children. The shelters were half buried in the ground with earth heaped on top.

TECHNIQUES – ELECTRICAL CIRCUITS



CAMOUFLAGE

An important element of Anderson Shelters was how well they could blend into the background so that German bombers flying over Britain couldn't identify them from the air. In order to blend in with their surroundings Anderson Shelters were dug into the ground and covered with mud, grass and other foliage.

Key Vocabulary

material circuits symbols bulb buzzer wire open switch closed switch battery measure cell

Year 6 PE - Autumn 1

Year 6 – Tag Rugby

Knowledge Organiser

Prior Learning

Combined basic tag rugby skills such as catching and quickly passing in one movement. Selected and implemented appropriate skills in a game situation. Begun to play effectively when attacking and defending. Increased the power of passes so the ball can be moved quickly over greater distance.

Unit Focus

Choose and implement a range of strategies and tactics to attack and defend. Combine and perform more complex skills at speed. Observe, analyse and recognise good individual and team performances. Suggest, plan and lead a warm-up as a small group.

We are learning...

1. To create attacking continuity by supporting the player with the ball
2. To use set plays in attack to create space for the ball carrier
3. To develop the 3-step rule, comparing and contrasting to the 3-second pass option
4. To attack the space as a ball carrier to create scoring opportunities
5. To change from an attacking to a defensive formation when your team loses possession
6. To observe and analyse our classmate's performance

Key Questions

1. How should we tell other players the areas they need to improve on?
2. Why is it important to organise your team quickly into defensive positions?
3. Being able to change speed and direction quickly helps our defending; why?

Assessment Overview

Head – Use STEP principle to plan a warm-up
Hand – Use speed and agility in gameplay
Heart -Suggest ways to improve set plays

Rules

- When tagged, the ball carrier must either stop and pass the ball within three seconds or keep moving and pass within the three steps.
- If the ball leaves the field of play, the opposition will restart with a free pass from where the ball left the field.

Equipment

Rugby balls, tags, bibs and cones

Vocabulary

Transition, principle, STEP, agility, turnover, support, observe, analyse.

Year 6 PE - Autumn 1

Year 6 – Dance Unit 1

Knowledge Organiser

Prior Learning

Used professional examples to inspire ideas for explosive action. Owning and exploring new movement possibilities.

We are learning...

1. The technique of the stag leap and rebound jump
2. To explore relationships through dance and perform partner lifts
3. To compose a dance phrase based on the Hakka
4. To choose and use suitable dynamics for the Hakka
5. To link freeze frames to street dance style to create a short movement phrase
6. To perform a Top Rock and Slide Step and perform confidently with a partner

Assessment Overview

Head – Interpret different stimuli with imagination and flair.
Hand – Use recognised dance actions and adapt to create motifs and movement patterns.
Heart – Take the lead suggesting ideas and refining actions of others.

Equipment

Laptop/projector to show video clips/play music, CD player, cones.

Vocabulary

Motif, street dance, Hakka, composition, collaborate, stag leap, rebound, expression.

Unit Focus

Work collaboratively to include more complex compositional ideas. Talk about different styles of dance with understanding, using appropriate language & terminology.

Key Questions

1. Do you think you captured the street dance style?
2. If you were going to perform as a small group rather than a pair, what compositional ideas could you use to extend your phrase? (formations, canon, lifts etc.)

Concepts

Dance Genres
Ballet. Modern. Hip-Hop. Ballroom. Folk dance. Performance Art.

Year 6 PE - Autumn 2

Year 6 – Gymnastics Unit 1

Knowledge Organiser

Prior Learning

Created longer and more complex sequences and adapted performances. Taken the lead in a group when preparing a sequence. Can develop symmetry. Can compare performances and judge strengths and areas for improvement.

We are learning...

1. To use controlled flight onto high apparatus
2. To dismount from high apparatus
3. To develop a short sequence using flight in canon formation
4. To incorporate equipment such as hoops and balls into a group sequence
5. To create a paired flight sequence using both canon and unison
6. To create and perform a 6-element sequence to music

Assessment Overview

Head – Identify strengths and weaknesses of a performance.
Hand – Experience flight on and off apparatus.
Heart – Lead group warm up demonstrating the importance of strength and flexibility.

Equipment

Mats, hoops, cones, wall bars, beanbags, low apparatus, action cards, table tops, box tops.

Vocabulary

Flight, consistent, vault, vaulting sequences, combinations, direction, dismount.

Unit Focus

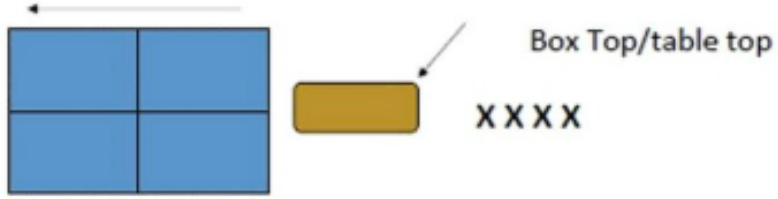
Demonstrate accuracy, consistency, and clarity of movement. Arrange own apparatus to enhance work and vary compositional ideas. Experience flight on and off high apparatus.

Key Questions

1. How did the warm-up help your performance?
2. Why do unison and cannon work well together in a sequence?
3. What different ways can you include a hoop, ball, beanbag, throw down spots or balls in a sequence?

Concepts

The vault is a piece of artistic gymnastics apparatus that gymnasts perform on, as well as the skill performed using that apparatus. Vaulting is also the action of performing a vault. Both male and female gymnasts perform the vault.



Year 6 PE - Autumn 2

Year 6 – Basketball

Knowledge Organiser

Prior Learning

Use strength, agility and coordination when defending. Move the ball accurately in a variety of situations. Select and apply a range of tactics and techniques to play with consistency.

We are learning...

1. How to counterattack using the fast break.
2. The retreat dribble to maintain possession.
3. To perform a free throw with consistency.
4. To use speed and agility to perform a v-cut to get free from a defender.
5. To drive to the basket using strength and coordination.
6. The three-point shot and how different points are awarded.

Assessment Overview

Head – Implement a range of strategies to attack and defend, such as restricting attackers' space.
Hand – Able to track and control a rebound from a shot (penalty or open play).
Heart –Counterattack with team using the fast break.

Equipment

Size 5 basketballs, cones, hoops, basketball posts, bibs, stopwatch, whiteboards.

Vocabulary

Fast break, counterattack, retreat, maintain, pressure, free throw, L-cut, V-cut, pin down.

Unit Focus

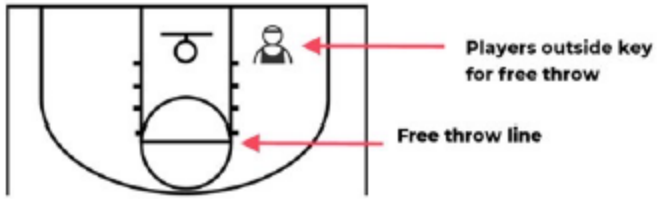
Apply aspects of fitness to the game, such as power and strength. Choose and implement a range of strategies to play defensively and offensively. Grasp more technical aspects of the game.

Key Questions

1. Working with your partner, can you think of ways you can support a player driving to the net?
2. Why would you use the v-cut tactic when attacking?
3. Can you suggest some other ways to beat the defenders who are putting pressure on you?

Rules

- If a player commits a personal foul to someone as they are attempting a 3-point shot, they get a free throw. If the shooter scores even though fouled, they could therefore win 4 points (3 from the three-point shot and 1 for the free throw).



THE PE HUB

Year 6 Computing - Autumn 1

V6

COMPUTING SYSTEMS AND NETWORKS KNOWLEDGE ORGANISER

Overview

Searching and Communicating

-You should already know that the internet is a network of networks.

-You should also know that the World Wide Web is the part of the internet where we can visit websites and webpages.

-The World Wide Web can be used to find information, using search engines.

-The internet is also a useful communication tool – with a number of different communication mediums for a range of different purposes.

Search Engines - Introduction

-We can find information on the World Wide Web by using search engines.

-A search engine is a program that finds websites & webpages based on key words entered by the user.

-When the World Wide Web was invented by Tim Berners-Lee in 1989, there was only 1 website. By 2018, there were 1,630, 322, 579! The World Wide Web is a big place, and we need search engines to be able to find what we need.

-Some examples of search engines are Bing, Google, Yahoo, DuckDuckGo and Kiddle.

-You can also type searches into the address bar of the browser (e.g. Google Chrome or Microsoft Internet Explorer).

Selecting and Ranking Search Results

Selecting Search Results

-Search engines use programs known as crawlers to index the World Wide Web.

-They 'crawl' websites for searchable information – they then store where it is found in a huge index.

-Search engines select information from this index when we type in key words.

-Searching for some search terms can bring many millions of results.

-We need to make sure that our search terms are as refined as possible, in order to allow the search engine to select the information that is most relevant.

Ranking Search Results

-Search engines 'rank' the web pages (the highest ranked page is at the top).

-Search engines use algorithms to do this – algorithms look at a number of different factors and give web pages a score for each.

-The web page with the highest score ranks the highest.

-Some factors include if the search term is in the title of the page (high points) or if it appears in the paragraphs of the text on the page (lower points).

-Web designers consider algorithms when making when pages.

Online Communication

-Communication is when we share information with one another. We can communicate in lots of different ways on the internet, e.g. messaging services, emails, social media, video calling and gaming platforms.

-Public communication is visible to all, whilst private communication is restricted to only some people.

-Some communications are one-way (e.g. Youtube) whilst others are two-way (e.g. Skype).

-Some communications are to one person, whilst others are to many.

-We should consider which type of communication is most appropriate to our needs, safety and privacy.

Important Vocabulary

Internet | World Wide Web | Search Engine | Browser | Keyword | Google | Tim Berners-Lee | Ranking | Crawlers | Algorithm

Year 6 Computing - Autumn 2

Y6

COMPUTING: DATA AND INFORMATION KNOWLEDGE ORGANISER

Overview

Spreadsheets

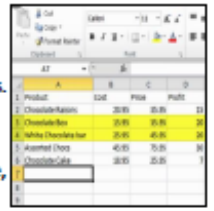
-Data is raw numbers and figures. Information is what we can understand from analysing data.

-There are lots of different ways that we can collect, log and interpret data, including by using spreadsheets.

-Spreadsheets organise and store data in meaningful ways so that it can be easily accessed and analysed. Computer spreadsheets are particularly useful for powerful calculations, graphs and charts.

What are Spreadsheets?

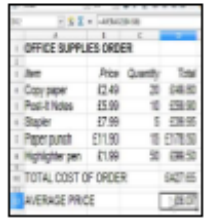
-A spreadsheet is a computer application that allows users to organise, analyse and store data in a table. Programs such as Microsoft Excel and Google Docs help users to make spreadsheets.



-A spreadsheet can be made up of multiple worksheets. They can be reordered and renamed. Each cell has a unique reference, made up of a number (the row) and letter (the column).

-Data headings allow data to be stored in a meaningful way.

-To select a cell, we click on it. To enter data, we double click on it. Data can be typed directly into a cell or into the formula bar.



-By clicking on a column or row, we can sort information in different ways (e.g. alphabetically, 0-9, etc).

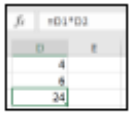
Formulas, Calculating and Duplicating

Formulas: A formula can tell a computer which mathematical operation to use for a calculation: add, multiply, divide, or subtract. It also tells the computer which data to use.

+ = add - = subtract * = multiply / = divide

Select your cell. Use cell references to create your formula.

E.g. In D3, you enter the formula =D1*D2. The answer will appear in D3.



-Calculations: Sometimes there are large amounts of data that require multiple or complex sums. The 'fx' or 'sigma' icons (see below, depending on the program you are using) can help you to find averages (AVERAGE) add many cells together (SUM) and many other calculations.

-Duplicating: Duplicating allows you to create copies of the same data, without having to type it out multiple times. The copy and paste function (Ctrl+C and then Ctrl+V) can duplicate individual cells. You can duplicate whole worksheets by clicking on the worksheet name and selecting 'move or copy' then tick 'create a copy.'

Other Functions

-Formatting makes a spreadsheet easier to read. Hovering the mouse between two columns/ rows allows the user to drag them to the desired size. Right-clicking on a cell and selecting 'format cells' presents a number of options, including fonts, borders, fill etc.

-Charts and graphs can be created using the data in the spreadsheet. Select the charts icon (see below) and which fields to display in the x-axis and y-axis.

Using Spreadsheets

-Spreadsheets are commonly used by individuals and businesses across the world. They are most commonly used for organising and presenting finances, for example budgets and finance reports.

-Spreadsheets may be used by businesses to look back on past income and expenditure and to forecast future performance. They are also used for calculating taxes and deductions.

Important Vocabulary

Information | Data | Spreadsheet | Format | Formula | Accounting | Filter | Software | Tax | Business