



SS John Fisher & Thomas More Catholic Primary School

A Voluntary Academy

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Design and Technology Planning

Year Group: Year 3 & Year 4	Topic: Electronical zoetrope – Moving Toys	Term: Spring 1 and 2 (Cycle A)
<p>National Curriculum Links (Ref: NC 2014) Pupils in Key Stage Two should be taught to:</p> <p><u>Design , Research , Make , Evaluation and Technical Knowledge</u></p> <ul style="list-style-type: none"> To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities To evaluate their own product. To investigate and analyse a range of existing products To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work To understand how key events and individuals in design and technology have helped shape the world Technical knowledge To apply their understanding of how to strengthen, stiffen and reinforce more complex structures. <p><u>History Link</u></p> <ul style="list-style-type: none"> The Roman Empire by AD 42 and the power of its army. The successful invasion by Claudius and conquest, including Hadrian's Wall The British resistance, for example, Boudica. The 'Romanisation' of Britain: sites such as Caerwent and the impact of technology, culture and beliefs, including early Christianity. 		
Knowledge and Skills Objectives	Teaching Input	Activities with Differentiation
<p><u>Lesson One</u> <u>I understand what animation is.</u></p>	<p><u>Starter</u> What's the Design and Technology process? Research – Design – Make -Evaluate. Whilst we are using the process it is important that we always use our technical language.</p>	<p><u>Activity 1</u> All chd are to make their own flip book animation. They are to use posit notes, pencil and black pen.</p>



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Design and Technology Planning

Working Technically

To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.

To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Resources

Pens
Posit notes
iPads
Image template for the flip book

Teacher info

<https://kids.britannica.com/student/article/animation/604592#:~:text=Animation%20is%20the%20process%20of,highly%20popular%20forms%20of%20entertainment.>

<https://kids.britannica.com/kids/article/animation/390715>

What was our last topic?
What did you make and how?
What did you learn?
What went well?
What did you find difficult?

Remind chd that Design and Technology isn't always about the end product, it is about the process of getting there. Always remember it is ok for things not to be 'perfect' and for everyone work to look the same. It's not meant too.

Sticky Knowledge

What is sticky Knowledge?
What is a deep dive in to a subject?

Let's have ago?

What are the following:
Cam
Dowel
Follower
Gladiator
Cam mechanism
Rod
Toy base

Main body

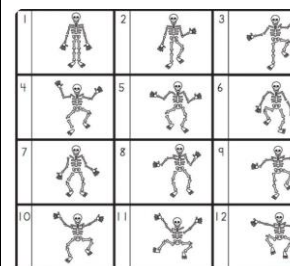
Ask the chd what they know about animation?
Animation is a way of making a movie from many still images. The images are put together one after the other and played at a fast speed to give the impression that the pictures are moving.

Go through the three main parts of animation this includes :

Allow chd to draw their animation using pencil first and then to go over it using black marker. They are to complete at least 4 images.

Struggling Learners

Chd are to these out and put them on to the posit notes.



Challenge

What is a zoetrope?
What are they made from?
When were they made?
How do they work?



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Stop motion: 3D graphics, stop motion and the use of Flipbooks, Thaumatrope and Zoetropes.

Questions

What is animation?

Why is animation made?

Which films have used animation?

Where is animation used?

When was the first animation film released

<https://www.youtube.com/watch?v=z6TOQzCD07Y&t=306s>

<https://thekidshouldseethis.com/post/pixar-zoetrope>

Flip Books

Explain to the child that flip books are pages that have little pictures, one on each page. Each picture has a small difference. To use it, and you hold it with your thumb and flick with your other hand. The pictures then move really quickly.

<https://www.youtube.com/watch?v=9Z76UAhGqko>

https://www.youtube.com/watch?v=c8ialIhxI_M

Tell the child that they are going to use post-it notes. Think about what you want your image to be and what movements you want it to do. All children to use pencil first and then go over it in black pen.



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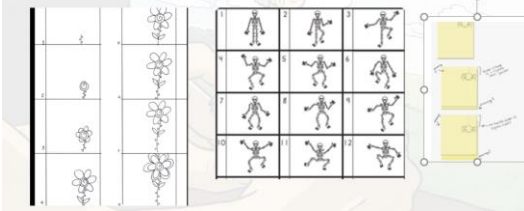
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Here are some ideas



Lesson Two

I know what a zoetrope is and where it comes from.

Working Technically

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To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Resources

Starter- Recap

Tell your friend what we learned last lesson in less than 60 seconds.
What toys are around today?
Which toys do you like and why?
How have toys changed as the years have gone on?

Main body

<https://www.youtube.com/watch?v=fNxUXqjbnY>
Explain to the chd that toys have moved on progressively quickly throughout the years. The Victorian toys: marbles, jacks, spinners, Thaumatrope and Zoetrope, teddies.

What is a zoetrope?

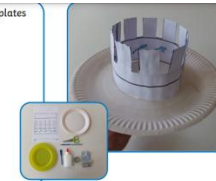
https://www.youtube.com/watch?time_continue=3&v=SBg6dAE3mIO&feature=emb_title

A zoetrope is a device make an impression of action from a rapid (quick) succession of static (still) pictures.

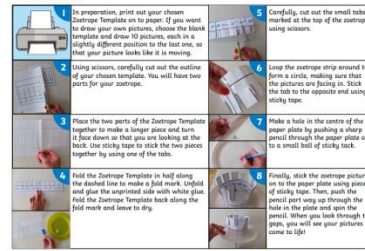
It is made up of a cylinder that has cuts that are vertical in the sides. Beneath the slits, on the inner surface of the cylinder, is a band which has either individual frames from a video/film or images from a set of sequenced drawings or photographs.

Activity 1

- Print out of Zoetrope Templates
- Paper plate
- Scissors
- Sticky tape
- White glue (such as PVA)
- Glue spreader
- Pencil
- Sticky tack
- Small piece of tin foil



What To Do:



Struggle Learners

To make one in pairs with templates already prepared.

Challenge

Chd are to experiment making their own- using their own style.




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<ul style="list-style-type: none">• Print out of Zoetrope Templates• Paper plate• Scissors• Sticky tape• White glue (such as PVA)• Glue spreader• Pencil• Sticky tack• Small piece of tin foil 	<p>As the cylinder spins, the user looks through the slits at the pictures on the opposite side of the cylinder's interior. The scanning of the slits keeps the pictures from simply blurring together, so that the user sees a lot of fast images producing the impression of motion, the same of a motion picture.</p> <p>The zoetrope was invented in 1834 by George Horner, who called it a "daedalum" or "daedatelum". Horner's invention was based on a similar device, the phenakistoscope, invented in 1832 by Joseph Plateau. William F. Lincoln promoted Horner's device in America as a "zoetrope".</p> <p>Questions</p> <p>What is a zopetrophe? How does it work? What does it look like? When were they made? Who made them? Why do you think people bought them and they became popular? What do they remind you of?</p>	
<p>Lesson Three</p> <p><u>I can make a plan to design my own zoetrope based on my geography learning Llandudno.</u></p> <p>Working Technically: To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p>	<p>Starter/ Recap</p> <p>What is a zoetrope? What is animation? What is a flip book? When was animation first invented? What do you need to make a simple zoetrope? What are Victorian toys and can you name any?</p> <p>Reminders.</p> <p>Remind the chd of these learning facts. 1) Think for ourselves – using our prior knowledge. 2) Ask a friend for help. 3) Ask a group for help.</p>	<p>Main Activities</p> <p>Activity 1 Allow chd to have ago at making their own simple circuit using the video.</p>



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To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Resources

Plans
Sticky tape
Cardboard
Blue tack
CDs
Motors
Batteries
Wires
Pencils
Pencil clours

4) Ask the teacher / teacher helper.

Remember it's ok to struggle – it helps out cognitive ability (basically, problem solving.)

Share this slide with the chd.


Design Criteria/ Plan

The design criteria (sometimes called specifications) tells the designer (or the maker which is you) exactly what the product has to do and what its design requirements are.

The design criteria is a list of all the things you need to make the product.

It should contain details of the functional, aesthetic (what it looks like) and design features of the finished product.

It may also include information about size, weight, materials, maintenance, cost and safety.



Main Body

Explain to the chd that their DT unit is linked to our geography work from this term.

What do you know about Llandudno?

https://www.youtube.com/watch?v=jaDxquh4_8E&t=528s

Then show the chd some images that are linked to Llandudno.

What do you know about Llandudno?

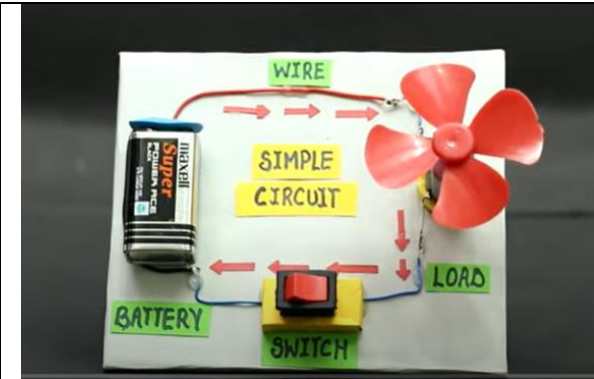
Where is Llandudno?

What do you find there?

How is it different and the same to Wythenshawe?

Which images would you like to include on your zetrope?

For example:



Activity 2



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Boats moving, people walking on the beach, balls on the beach, having fun on the beach, boats etc.

Remind the chd ow to make a zoetrope

<https://www.youtube.com/watch?v=uZEtMPxDjDE>

Then ask the chd the following questions:

What did you notice?

What did they use?

How did they make it?

What do you think maybe tricky and why?

Instructions that I did to make it.

- 1) Cut along piece of card around 42cm.
- 2) Make slits of 2cm, make sure the gaps are 4ch between each one. There will be 7 slits.
- 3) Turn so the slit are facing upwards.
- 4) Then draw your images inside the gaps.
- 5) Now get a CD cut around it and then stick it down tape and four pieces of blue tack around the edges to make it studier.
- 6)Then out a whole where the moto needs to lie.
- 7) Then stick the strip around the CD with tape.
- 8) Now put some blue tack on the top of the motor.

Then watch it

Remind the chd how to make a simple circuit.

Features to consider	My ideas
What will my moving image be? Linked to Llandudno.	
What resources will I need to make the zoetrope?	
What will I need to make the simple circuit?	
What are the steps one the step by step guide to make it?	1) 2)
What could be tricky and why? What can I do if I do find something difficult?	
A picture of my final design	

Struggler learners

To use the ideas from the board as a class.

Challenge

To create a step by step by guide.



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	<p>https://www.youtube.com/watch?v=uZEtMPxDjE</p> <p>What did they use? What did they do? What do you think you may find tricky and why? Which but are you looking forward too? Instructions that I did to share with the chd.</p> <p><u>Now show the chd the plan</u></p> <p>Ask the chd the questions as a class and leave the suggestions in the board for the struggler learners to use.</p> <p><u>Silent Gallery</u></p> <p>During the lesson is going on- encourage chd to complete a silent gallery. This is whereby chd go around their friends work and see what they did and use their whispers at the end to gain ideas and help if needed.</p>	
<p><u>Lesson Four and Five</u> <u>I can create a design for my own electrical zoetrope.</u></p> <p><u>Working Technically:</u> I can use research and develop design criteria to inform the design of innovative, functional,</p>	<p><u>Recap /Starter</u></p> <p>What is the DT process? What is a zoetrope? What is animation? What does a zoetrope do? How do you make one? What materials will you need? What is a simple circuit?- what is included? What is a plan and why do we use them? #what do we do if we need help?</p>	<p><u>All chd</u> All chd are to make their zoetrope using their designs.</p> <p><u>Struggling Learners</u> If chd are struggling they can use the template form the previous lessons to help the or teacher make the templates to fit the CDs. Akethe base for the ch already.</p> <p><u>Challenge</u> Does the size and the amount of blue tack used matter of the pace.</p>



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appealing products that are fit for purpose, aimed at particular individuals or groups.

I can generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Resources

Wires
motors
Battery
Card
Scissors
Sticky tape
Pencil
Colours
Black markers
Plans

Main Body

Chd are to use their plans to make their design final product.
Show chd this link:

Week six

[I can evaluate my final product/.](#)

Working Technically

Starter/ Recap

What have you done in the previous lessons?
What did you make last lessons?
How did you make it?

All chd



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I can evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Resources

Plans
Evaluation sheets self and peer
Models that the chd have created

What went well?
What did you find hard?
What did you enjoy?
What didn't you enjoy?
What have you learned?

Main

What does the word evaluate mean?

Why do we evaluate?

What should we do when we are evaluating?

What shouldn't we do when we are evaluating?

Why are evaluations useful and beneficial?

What are the cons evaluations?

Explain to chd what evaluating is:

Evaluating is the method of deciding if you've done something the best way, and looking at what could be improved. We'll cover why it's important, and more!

Evaluating means judging the quality, value or relevance of something you've done – essentially, it means checking if you've done something the best way and seeing what improvements could be made.

Peer Assessment

During this lesson we are going to evaluate each other's work. It is important to be able to peer assess as well as self-assess.

Peers assessment is also important as it can develop your self-confidence and communication skills and we call learn a lot form other peoples as they may suggest things that we may not have thought of.

You are to think of the following questions:



What has worked well and why?

What could be improved for next time and why?

Student Name	Week/Year
<p>Peer Assessment</p> <p>Use this sheet to evaluate the work of your classmate.</p> <p>1. I think I followed my design well when making my moving toy.</p> <p>2. I am pleased with the quality of my moving toy.</p> <p>3. My toy suits the purpose and audience it was designed for.</p> <p>4. The plan I made before on my toy works really well.</p> <p>5. The materials of my toy is sturdy.</p> <p>6. I think I chose the correct materials to make my toy safe.</p> <p>7. There are lots of things I would change if I made my toy again.</p> <p>8. I spent a lot about working with materials when making my toy.</p>	

Design Technology Project Evaluation Sheet

Aim of the Project:	
What Worked Well?	Challenges I Faced
How I Dealt with Any Challenges	What I Would Change Next Time

Peer Assessment




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	What do you like about it?	<p>Write down any key points that your friends has suggested about your toy that you would like to consider for next time.</p> 
<p>Applied Write Opportunities: To wrote a set of instructions of how to make a zoetrope. A fact file about the individuals that made the zoetrope and zoetropes' themselves.</p>		
<p>Homework Opportunities To research different zoetropes. To make zoetrope. To find put more about animation.</p>		
<p>Enrichment Opportunities: To visit a factory.</p>		
<p>Key Vocabulary</p> <p>Tier Two: spin, circuit, toys, movement, Victorian era, make, create, design, movement, film, plan, make, create, pictures, flip book, Tier Three: animation , zoetrope, evaluate, product, frames, images,</p>		