



SS John Fisher & Thomas More Catholic Primary School

A Voluntary Academy

"Journeying together with Jesus Christ, we learn to love and love to learn."



Medium Term Planning Creative Learning Journey

Subject: DT	Topic: Technical Knowledge -Exploration of simple mechanisms	Differentiation
<p>NC Links:</p> <p>Design</p> <ul style="list-style-type: none"> design purposeful, functional, appealing products for themselves and other users based on design criteria generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <p>Make</p> <ul style="list-style-type: none"> select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> explore and evaluate a range of existing products evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. 		
<p>Week 1: EXPLORE AND EVALUATE LO: I can explore and evaluate moving toys LO: I can name a mechanism (lever, cam, spring, gear, axle)</p>	<p>Children to move around the tables and explore the different toys (jack in a box/cars/pull along toys/gears (construction set) – what part is moving? How do they move? Return to the carpet to discuss what they have found. Children to report back what they found out, which was their favourite type of toy and why?</p> <p>Watch youtube videos of the different type of mechanisms, whilst watching the video create actions for each mechanism to help the children remember.</p>	<p>LA – explore talk about the toys with a TA who records their answers in a mind map format. Label real toys with post it notes</p> <p>MA/HA in mixed ability pairs to label the mechanism (mechanism words on tables to support)</p>



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	<p>https://www.youtube.com/watch?v=jtk2VOM6k3M (levers, pulley and wheels/axel) https://www.youtube.com/watch?v=ubohi5I_7bY (cam - will need to talk the children through what is happening/how it is making it move) gears - https://www.youtube.com/watch?v=odpsm3ybPsA (first few minutes) Spring - https://www.youtube.com/watch?v=IiTdEuQiMXg (little silly but kids will prob love!)</p> <p>Assess the children's knowledge by calling out a mechanism and then acting it out. Return to the toys and identify the mechanism being used (lever, cam, spring, gears)?</p>	<p>Year 2 – Match the mechanisms to their label and then identify which mechanism they would use for a pull a long toy and why. Which one would you not use? What is the reason for this?</p>
<p>Lesson 2: EXPLORE LO: I can explore pull along/wheeled toys and their axel. I can identify an axel I can explore how an axel may work on my own design</p>	<p>What is a vehicle? What does it do? What are they used for? Have a range of wheeled/pull toys on the tables. Pose questions to the children to explore at tables - what is turning? (wheels and axel). How are they attached? What materials can you find on the toy? What parts of the toy can move? How do you make the toy move? What games can you play with the toy?</p> <p>Children to feedback at the carpet, read 'wheels and axels' for a simple explanation.</p> <p>Show the children a shoebox and tell them that this could be the body for a car. Take four cardboard wheels and glue them onto the side of the shoebox. Look disappointed when the wheels will not turn. Ask the</p>	<p>All children to explore available resources to see if they can get an axel to move so the wheels turn. Equipment – dowels, wheels, straws, lolly sticks, pipe cleaners, boxes (to test), tape, glue.</p> <p>Look at some images of different vehicles – can they identify the different parts? E.g. body, wheels, axel, chassis - frame</p> <p>Children to return to the carpet to feedback their ideas and for the</p>



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	<p>children if they can think of a better way of attaching the wheels so that they turn....</p>	<p>teacher to model and test. Conclude what would make a good axel?</p>
<p>Lesson 3: DESIGN LO: I can use a design criteria I can design a purposeful moving toy I can draw and label my design.</p>	<p>Explain to the children they will be each making their own moving vehicle. Can the children recall some moving toys/vehicles they saw? Brainstorm ideas of items that move on wheels.</p> <p>Tell the children that the <i>Terrific Toy Company</i> wants to build some new toy vehicles (SEE POWERPOINT on SYSTEM WEEK 3). Who is your moving toy going to be for?</p> <p>Discuss with the children some of the things that they have found out about how to make the vehicles i.e. how to make things move, materials to use, what vehicles are used for, sounds made by the vehicles. Discuss with the children different types of vehicles that they could make i.e. lorries, ice cream vans, fire engines.</p> <p>Get the children to think about how they could make a toy car. Discuss with the children the steps they will need to take to complete the car.</p> <ol style="list-style-type: none"> What can we use for the main body of the car? How are you going to attach the wheels? How will you make sure that the wheels move? What can you do to make sure that it looks like car? <p>Tell the children that the <i>Terrific Toy Company</i> wants vehicles that (criteria)</p> <ol style="list-style-type: none"> can move are colourful and exciting to play with 	<p>Activity - children will draw and label a picture of the vehicle that they are going to be making. Children to write a list of the materials they are going to need to use to build their vehicle. <i>Leave out pictures of different types of vehicles on the children's tables.</i></p> <p>Differentiation: YEAR 2: will be able to create more complex vehicles designed for a purpose such as a tipper truck or fire engine they will be encouraged to include a moving part using levers/sliders (link back to KS1 DT projects) or turning parts (split pin) Year 1: choose a vehicle and draw and label it. Write a list of items they will need to make their model include colours/materials etc LA: Chn to be provided with choice of 2 vehicles to make, TA will discuss materials available and use prompts to help decide what is needed LA will</p>



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	<p>c) won't break when they are played with d) will need a logo (Year 2) – give extra input the explain what a logo is and how toy companies have logos. Model how to draw a design on design sheet.</p>	<p>write key words/phrase of what they need.</p>
<p>Lesson 4: MAKE: LO: I can select and use a range of tools to make my design I can choose appropriate resources according to their characteristics to match the criteria.</p>	<p>**SPLIT THE CLASS IN HALF, HALF MAKING, HALF IN PROVISION** Explain to chn that in this lesson they will be carrying out a lot of practical work as they will be making their vehicles. Explain how they will each have a box which will act as the body of their vehicle. Model each of the following steps. Explain the importance of accurately measuring where the axle will go into on the box. Discuss safety rules with whole class. Any cutting of dowel will be done with an adult. Adult to stay on cutting station at all times. Step 1 (Y2) Model to chn how they will need to make two pairs of holes which are parallel to one another at the front of the box and the back (hole punch?). Ask chn: why is it important that the holes made are parallel? Step two: (Y1) To get two axles and then measure and mark them. They will then take these axles to Assistant to saw. Discuss safety measures using a saw Step 3: Whilst children are measuring axels and using the saw, small groups can wrap their boxes in white paper and pva glue Step 4: make windows doors and details e.g. siren for vehicles Step 5: paint vehicles and stick on details Step 6: attach axels and wheels.</p>	<p>All children to make their moving vehicle with available resources. Children to use their designs and resource list to ensure they meet the success criteria (on the board)</p>
<p>Lesson 5: MAKE:</p>	<p>**SPLIT THE CLASS IN HALF, HALF MAKING, HALF IN PROVISION** Explain to chn that in this lesson they will be carrying out a lot of practical work as they will be making their vehicles.</p>	<p>All children to make their moving vehicle with available resources.</p>



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<p>LO: I can select and use a range of tools to make my design I can choose appropriate resources according to their characteristics to match the criteria.</p>	<p>Explain how they will each have a box which will act as the body of their vehicle. Model each of the following steps. Explain the importance of accurately measuring where the axle will go into on the box. Discuss safety rules with whole class. Any cutting of dowel will be done with an adult. Adult to stay on cutting station at all times. Step 1 (Y2) Model to chn how they will need to make two pairs of holes which are parallel to one another at the front of the box and the back (hole punch?). Ask chn: why is it important that the holes made are parallel? Step two: (Y1) To get two axles and then measure and mark them. They will then take these axles to Assistant to saw. Discuss safety measures using a saw Step 3: Whilst children are measuring axels and using the saw, small groups can wrap their boxes in white paper and pva glue Step 4: make windows doors and details e.g. siren for vehicles Step 5: paint vehicles and stick on details Step 6: attach axels and wheels.</p>	<p>Children to use their designs and resource list to ensure they meet the success criteria (on the board)</p>
<p>Lesson Six: EVALUATE: I can evaluate my moving vehicle against design criteria I can talk about the mechanisms I have used I can say what would make my model even better</p>	<p>As a group look at a selection of models made by the children, cross check with their design sheet and use the criteria: a) can move b) are colourful and exciting to play with c) won't break when they are played with d) will need a logo (Year 2) Does your vehicle move? Will it stay together when we push /pull it along the floor? Have you used lots of different colours? Does it have all the features of said vehicle e.g ladder (fire engine) window (ice-cream van)</p>	<p>Complete an evaluation sheet of their final design. Write what they liked about their design and then write how they would improve their design. Y1 to tick criteria if it has been met. HA – more detail/technical language. LA – words/phrases</p>



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<p>(stronger/stiffer more stable?)</p>	<p>What do you like about it? What would make it even better? Model filling out an evaluation form.</p> <p>Children to return to tables with their models, first discuss with their partner and check it meets the criteria Then complete the evaluation forms.</p>	<p>Y2 to write about how they met the criteria. HA – use technical vocab and also evaluate their logo.</p>
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Key Vocabulary:

Tier 2 – moving, wheels, vehicle, design, vehicle, parts, purpose, design sheet, ideas, resources, materials

Tier 3 – lever, cam, spring, gear, axel, wheels, mechanism, chassis, body, axles, join, single hole punch, saw, joining, combining, connecting, testing, doweling, hole punch, logo, distance