



Subject: DT

Year group: 2

Term: Summer

Unit name: Mechanisms- Wheels and Axles

**National curriculum- technical knowledge**

- DESIGN-to design purposeful, functional, appealing products for themselves and other users based on design criteria
- MAKE- select from a wide range of materials and components, including construction materials according to their characteristics
- EVALUATE- explore and evaluate a range of existing products
- TECHNICAL KNOWLEDGE- Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

**Prior Knowledge –**

- Assembled vehicles with moving wheels using construction kits.
- Explored moving vehicles through play.
- Gained some experience of designing, making and evaluating products for a specified user and purpose.
- Developed some cutting, joining and finishing skills with card.

**Key vocabulary**

Vehicle	free
Wheel	moving
Axle	mechanism
axle holder	names of tools
chassis	equipment and materials used
body	design
cab	make
assembling	evaluate
cutting	purpose
joining	user
shaping	criteria
finishing	functional
fixed	

**Design Process**

Investigative and Evaluative Activities (IEAs)

Focused Tasks (FTs) *To include making a prototype*

Design, Make and Evaluate Assignment (DMEA)

**Spiritual Development**

DT Gives children the opportunity to work creatively and explore ways to make lives better for those around us. *Exodus 34:35 He has filled them with skill to do all kinds of work as engravers, designers, embroiderers in blue, purple and scarlet yarn and fine linen, and weavers—all of them skilled workers and designers.*

Ways to fix wheels		Types of wheels		Ways to hold moving axles	
				<p><b>Use pairs of clothes pegs</b> glued with PVA to the underside of a box. Check the peg holes are large enough to allow axles to move freely. Make sure they are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.</p>	
<p><b>Types of wheels</b></p>		<p><b>Use card triangles</b> with holes for the axle. Check the holes are large enough to allow the axle to move freely. Make sure opposite triangles are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.</p>		<p><b>Use large paper/plastic straws</b> fixed with masking tape to the underside of a box. Check straws are positioned carefully so the vehicle will move in a straight line when the wheel and axle mechanisms are added. Make sure the straw hole is large enough to allow the axle to move freely. The wheels must be fixed tightly to the axle.</p>	

Key Learning Assessment Statements- what will the children know by the end of the unit?
To be able to explore and evaluate a range of wheeled products such as toys and everyday objects, focusing on how wheels and axles are used in daily life, the number, size, position and methods of fixing wheels and axles.
To draw an example of a wheeled product, stating the user and purpose.
To label the main parts of a wheeled product e.g. body, chassis, wheels, axles and axle holders.
Using construction kits with wheels and axles, ask children to make a product that moves.
To be able to identify fixed axles and free axles.
To be aware of different ways of making axle holders and know about the importance of making sure the axles run freely within the holders.
To know how to mark out, hold, cut and join materials and components correctly to make axles.
To be able to add finishing techniques to their product with reference to their design ideas and criteria- incorporating ICT where possible- clip art, word art etc.