Brough Primary School – Curriculum Intention Plan 2023 - 2024

Subject: DT **Year Group:** Y1/2 - Cycle B	**Area of learning:** Focus - Wheels and axles Using wheels and axles in products ***'Can the children make a model of something that moves on wheels?'***

Links to previous work/Remember when	• The children have not yet made a mechanism involving wheels and axles, but will have played with many vehicles either ride-on or smaller. • In EYFS children have had very little experience of building a mechanism with wheels and axles in school, however they will have used a number of different versions to play with. • Year 2 children have designed, made and evaluated in previous terms.

Term	Year	Key Skills to be taught
Autumn 2023 What the children should know at the end of this series of lessons	**Y1/2**	**<u>Design</u>** • 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 **<u>Make</u>** • 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 **<u>Evaluate</u>** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria **<u>Technical knowledge</u>** • 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.

Vocabulary
Wheel, axel, body, chassis, rotate, dowel, cardboard, axle holder, friction, vehicle, evaluate, design criteria, user, design, strength, weakness.

Brough Primary School – Curriculum Intention Plan 2023 - 2024

Sequence of learning	Objectives and suggested details provided by subject leader.
1	**<u>Research Phase</u>** **<u>Investigate existing moving toy vehicles</u>** *- explore and evaluate a range of existing products.* *- Find out and evaluate how toys can move using wheels.* Look at examples of moving toy vehicles. Discuss what they have in common, what they are made of, how they are made, e.g. body, chassis, wheel, axle, rotate, axle holder, vehicle. Choose which design they prefer and why.
2	**<u>Research Phase</u>** **<u>Experiment with wheels and axles</u>** **<u>How can we make things move with wheels and axles?</u>** *- explore and evaluate a range of existing products.* *- Find out and evaluate how toys can move using wheels.* Using card to make a chassis, investigate different ways of attaching an axle to the chassis, e.g. 1. using PVA glue to attach clothes pegs to the chassis and then putting the axle through the clothes pegs, 2. Using masking tape to attach a straw to the bottom of the chassis and then putting the axle through the straw. 3. Folding the sides of the card chassis down and using a hole punch to put holes in the folded parts of the card. Then slotting the axle through the holes in the card. 4. Maybe using masking tape to attach the axle directly to the bottom of the chassis and then having wheels that are loosely fitted to the axle so that the wheels move but the axle is fixed. Which do the children think works best? Which is the easiest? Which would they use and why? Also, could investigate different types of wheels - card, wooden, plastic - which do they like the best?
3	**<u>Design Phase</u>** **Design our own model toy vehicle using ideas from our evaluations of existing products.** What will it carry? Who is it for? How many wheels will it need? *- 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*

Brough Primary School – Curriculum Intention Plan 2023 - 2024

	Design Criteria: : Wheels must be able to rotate : Wheels must be connected using an axle. : The vehicle has a strong and stable chassis as a base. Task What type of vehicles do we know about? What type of body do they have? Who will use them? What will they need to have? Windows? How many wheels? Shape of body? What could we use to make the body of our vehicle? Plastic bottle? Tissue box? Yoghurt pots? Margarine tub? How will we decorate it? Paint? Card? Felt tips? Draw initial idea and label the parts, e.g. axle, wheel, chassis, body, axle holder.
4	**<u>Design Phase</u>** **Plan the sequence of stages of our build.** What will our toy vehicle look like? What steps will we take? *- 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* Look back at the design from the last lesson. Think about and plan the steps that you will go through to make the vehicle and what you will need. Make a flow diagram/storyboard that shows, in words or in pictures, how you will make your moving vehicle. - Are you going to get the children to cut the dowel using the saws and the vices? -
5	**<u>Making Phase</u>** **Make our model toy vehicle!** Use a variety of equipment and resources to make a successful product.

Brough Primary School – Curriculum Intention Plan 2023 - 2024

	- 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* *- build structures, exploring how they can be made stronger, stiffer and more stable* Tell children that today they will be following their designs to make their vehicles. This means there will be lots going on in the classroom and lots of tools, such as scissors, around. How can we make sure we are working safely and sensibly when we are making our vehicles? Explain to the children the health and safety requirements for the tools that you are working with and ensure that the children are following these instructions. Create the model vehicles.
6	**<u>Evaluation Phase</u>** **Evaluate our product and suggest improvements to our build.** What are the strengths and weaknesses of our finished product? - explore and evaluate a range of existing products - evaluate their ideas and products against design criteria Allow time for the class to look at other children's final pieces and verbally evaluate them. Reflect on the design criteria and tick off the features they included in their design. Evaluate their vehicle against the design criteria. What features worked well? What could you improve if you did this again?

Learning Outcome/product	
Can you make a model of something that moves on wheels?	

Assessment records	**List only those children who have not achieved the expected outcomes.**

Brough Primary School – Curriculum Intention Plan 2023 - 2024

End of unit assessment question
How can we make a wheeled vehicle move?