

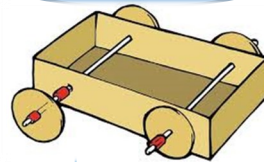


Prior Learning (EYFS):

- 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.

Mechanisms: Wheels and Axles

'Can I design, make and evaluate a toy car?'



1. Can I understand how toy cars work?

- **Vocab:** mechanism, wheel, axle, axle holder,
- Know that wheels are round and turn to help a toy car move, and that an axle is a rod that goes through the wheels.
- Know that some axles are fixed (stay still) and some axles rotate with the wheels to help the car move.
- Know and use the words wheel, axle, axle holder and rotate to explain that a toy car moves when the wheels are attached to an axle, the axle sits in axle holders, and as the wheels rotate, they turn the axle to make the car roll forward.

Task: Provide a range of toy cars. Children explore how they move by pushing and rolling them, then look closely to identify the wheels, axles and axle holders and talk about how these parts help the car move.

• Technical Vocabulary:

- Explore and use wheels, axles and axle holders.
- Distinguish between fixed and freely moving axles.
- Know and use technical vocabulary relevant to the project.

2. Can I Design a toy car?

- **Vocab:** design, ideas, user, drawing
- Know that we can think of ideas for a toy car by talking about our own experiences of playing with cars and what we like.
- Know that we can create simple design criteria by deciding what our toy car needs to do, such as move using wheels and an axle.
- Know that we can share and develop our ideas by drawing a picture and talking about how our toy car will look and work.

Task: Provide images of toy cars. Children talk about toy cars they have used before, share ideas, and draw a simple design of their own toy car showing key features like wheels and axles.

Designing:

- Generate initial ideas and simple design criteria through talking and using own experiences.
- Develop and communicate ideas through drawings and mock-ups.

4. Can I Evaluate my model of a toy car?

- **Vocab:** evaluate, improve, design, user, criteria
- Know that we can look at different toy cars and talk about what we like and how they work using wheels and axles.
- Know that we can talk about our own toy car and say what works well and what we would change.
- Know that we can evaluate our toy car by checking if it matches our design and meets the needs of the user.

Task: Provide a range of toy cars alongside the children's finished cars. Children explore and compare how the cars move, then talk about their own toy car, saying what they like, how it works, and how it could be improved.

Evaluating:

- Explore and evaluate a range of products with wheels and axles.
- Evaluate their ideas throughout and their products against original criteria.

3. Can I Make a toy car?

- **Vocab:** make, build, material, join, cut, axle, wheel, chassis, safe
- Know that we can use tools safely to cut and join materials when making our toy car.
- Know that we can choose materials such as card, plastic or wood because of their strength, flexibility and suitability.
- Know that we can follow our design to build a toy car by attaching wheels to an axle and fixing it to a chassis so it can move.
- Know that we must work safely to protect ourselves and others when using tools and materials.

Working Safely:

- Use scissors and tools carefully, cutting away from the body.
- Hold materials securely when cutting or joining.
- Keep fingers away from moving parts when attaching wheels and axles.
- Work in a tidy space and carry tools safely.
- Listen carefully and follow safety instructions at all times.

Task: Provide a range of materials, tools and prepared components (e.g. wheels, axles). Model how to use tools safely before children begin. Children select suitable materials and use tools to cut, shape and join parts, building a toy car that matches their design and can move using wheels and axles.

Making:

- Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.
- Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.