

Ashtree Primary School and Nursery Medium Term Plan for DT

Nursery – Mechanisms

Key Vocabulary

Mechanisms: moving, join Make: join, cut, equipment, materials, design: plan, purpose Evaluate: strong, weak

Key Knowledge

Children can be taught key knowledge by following the steps below:

- Children should learn about different types of mechanisms and how they work, such as gears, levers, pulleys, and wheels.
- Introduced to simple machines, such as levers and pulleys
- observe and explore movements of different mechanisms.

Key Skills

Development Matters 2020 - Three & Four Year Olds

Physical Development

- Choose the right resources to carry out their own plan.
- Use large-muscle movements

Expressive Arts and Design

- Explore different materials freely, in order to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Use one-handed tools and equipment

PSED

- Select and use activities and resources, with help when needed.

Understanding the world

- Explore how things work
- Talk about what they see, using a wide vocabulary

Curriculum Enhancements

Children will be looking at mechanisms from the real world and they will show an understanding of how design and technology has helped to shape the world around them.

This includes how moving mechanisms are used to further society and technological advancements.

With support begin to incorporate moving parts in to models. For example, use split pins to make body parts move Q: How is this moving?

Possible Misconceptions

1. Objects move on their own. Children may believe that objects move on their own, without any outside force or input. Step to address: Provide opportunities for children to explore cause and effect, and how their actions can affect the movement of objects. Encourage them to push or pull objects and observe what happens. Ask open-ended questions to prompt their thinking, such as "What do you think made the toy move?"
2. All objects move in the same way. Children may believe that all objects move in the same way, regardless of their shape or size. Step to address: Provide opportunities for children to explore different types of mechanisms and how they affect the movement of objects. For example, they can investigate how a round object, such as a ball, moves differently from a flat object, such as a piece of paper.
3. Machines always work perfectly. Children may believe that machines always work perfectly and without any problems. Steps to address: Provide opportunities for children to experiment and explore different ways of using machines, and to encounter and solve problems. Encourage them to try different solutions and to think creatively about how to solve a problem. Model persistence and resilience in the face of challenges.
4. Mechanisms only work in one way. Children may believe that mechanisms only work in one way and cannot be used in different ways or for different purposes. Step to address: Provide opportunities for children to experiment and explore different ways of using mechanisms. Encourage them to think creatively and to try out different ideas. Ask open-ended questions to prompt their thinking, such as "How else could we use this mechanism?"

Suggested Activities/Questions

Understanding of different types of mechanisms:

- Exploring levers by playing on a seesaw or using a lever to lift and lower a small object
- Exploring pulleys by lifting and lowering objects with a rope and pulley system
- Creating simple machines using materials such as cardboard, rubber bands, and wooden dowels

Understanding of cause and effect

- Solving simple problems and challenges, such as figuring out how to make a toy car move faster or slower
- Following instructions to create a simple mechanism, such as a pulley system or a lever

This will lead to

Development Matters 2020 - Reception

Physical Development

- Progress towards a more fluent style of moving, with developing control and grace
- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.

Expressive Arts and Design

- Explore, use and refine a variety of artistic effects to express their ideas and feelings.
- Return to and build on their previous learning, refining ideas and developing their ability to represent them.
- Create collaboratively, sharing ideas, resources and skills

Communication & Language

- Learn new vocabulary, Use new vocabulary throughout the day & use new vocabulary in different contexts.
- Ask questions to find out more and to check they understand what has been said them.

ELG - Expressive Arts and Design

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used

ELG - Physical Development

- Use a range of small tools