# LENT TERM
# DESIGN AND TECHNOLOGY – YEAR 1 - MEDIUM TERM PLANNING – MECHANISMS (moving vehicle)

| LESSON 1 | LESSON 2 | LESSON 3 |
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| **TECHNICAL KNOWLEDGE**<br><br>**LEARNING INTENTION:**<br>To know that wheels, axles and chassis have functions.<br><br>**Skills:**<br>• Begin to understand how wheels and axles work.<br><br>**Aim:**<br>Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users. | **TECHNICAL KNOWLEDGE**<br>**MAKE**<br><br>**LEARNING INTENTION:**<br>To know that most vehicles that move on land have axles and wheels that are fixed to a chassis.<br><br>**Skills:**<br>• Begin to understand how wheels and axles work.<br>• Choose suitable materials and explain choices.<br><br>**Aim:**<br>Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users. | **EVALUATE**<br><br>**LEARNING INTENTION:**<br>To know that criteria is used when comparing two products.<br><br>**Skills:**<br>• Talk about existing products, and say what is and isn't good.<br><br>**Aim:**<br>Critique, evaluate and test their ideas and products and the work of others. |
| **Key Vocabulary:**<br>**wheel, chassis, axle,** rod, connect, vehicle, centre, product, machine | **Key Vocabulary:**<br>freely moving, **axle,** fixed, **wheels, chassis, move** | **Key Vocabulary:**<br>freely moving, axle, attached, wheels, chassis, criteria |
| **Recap and Retrieval**<br>Recap wheels on moving toys (FS1/2) | **Recap and Retrieval**<br>• An axle is a rod that is connected to the centre of the wheel which allows it to turn. | **Recap and Retrieval**<br>• An axle is a rod that is connected to the centre of the wheel which allows it to turn.<br>• Axles and wheels that are fixed to a chassis make a vehicle move. |
| **Key Knowledge:**<br><br>**Child:**<br>• An axle is a rod that is connected to the centre of the wheel which allows it to turn.<br>• A chassis is the frame of a vehicle. | **Key Knowledge:**<br><br>**Child:**<br>• Axles and wheels that are fixed to a chassis make a vehicle move. | **Key Knowledge:**<br><br>**Child:**<br>• Two products can be compared by looking at a set of criteria and scoring both products against each one. |

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| **Teacher:**<br>• A wheel is a circular object that is connected to an axle that vehicles and machines move. | • An axle fixed to a chassis has freely-moving wheels.<br><br>**Teacher:**<br>• A freely moving axle has fixed wheels.<br>• There are different ways to attach the axles and wheels to the chassis of a model.<br>• Fixed axles cannot move but the wheels turn freely. Axles on models can be fixed in place using clothes pegs or masking tape.<br>• Moving axles turn freely so the wheels are fixed to them. Moving axles can be held in place with cardboard tabs or pushed through holes in the chassis. | **Teacher:**<br>• Axles and wheels can be attached to chassis in different ways: an axle fixed to a chassis has freely moved wheels, whereas a freely moving axle has fixed wheels. |

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| LESSON 4 | LESSON 5 | LESSON 6 |
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| **DESIGN**<br><br>**LEARNING INTENTION:**<br>To know that a product or project is usually guided by a set of design criteria.<br><br>**Skills:**<br>• Design a product for themselves following design criteria.<br><br>**Aim:**<br>Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. | **MAKE**<br><br>**LEARNING INTENTION:**<br>To know that wheels and axles must work when making a working model.<br><br>**Skills:**<br>• Select tools/equipment to cut, shape, join, finish and explain choices.<br><br>**Aim:**<br>Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users. | **EVALUATE**<br><br>**LEARNING INTENTION:**<br>To know that strengths and weaknesses are used to evaluate a product.<br><br>**Skills:**<br>• Talk about their work, linking it to what they were asked to do.<br><br>**Aim:**<br>Critique, evaluate and test their ideas and products and the work of others. |
| **Key Vocabulary:**<br>**design, criteria, product,** wheel, axle, chassis, rod, connect, vehicle, free moving, attached, spindle. | **Key Vocabulary:**<br>**join**, **wheel, axle**, freely moving, **connect,** vehicle, mechanism, centre, spindle, rod, | **Key Vocabulary:**<br>**evaluate, strength, weakness**, outcome, improve, success, wheel, axle, chassis. |
| **Recap and Retrieval**<br>• An axle is a rod that is connected to the centre of the wheel which allows it to turn.<br>• Axles and wheels that are fixed to a chassis make a vehicle move.<br>• Two products can be compared by looking at a set of criteria and scoring both products against each one. | **Recap and Retrieval**<br>• An axle is a rod that is connected to the centre of the wheel which allows it to turn.<br>• Axles and wheels that are fixed to a chassis make a vehicle move.<br>• Two products can be compared by looking at a set of criteria and scoring both products against each one.<br>• Design criteria is a list of things that a product must have. | **Recap and Retrieval**<br>• An axle is a rod that is connected to the centre of the wheel which allows it to turn.<br>• Axles and wheels that are fixed to a chassis make a vehicle move.<br>• Two products can be compared by looking at a set of criteria and scoring both products against each one.<br>• Design criteria is a list of things that a product must have.<br>• Different joining techniques can be used to attach wheels and axles to chassis. |
| **Key Knowledge:**<br><br>**Child:** | **Key Knowledge:**<br><br>**Child:** | **Key Knowledge:**<br><br>**Child:** |

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| • Design criteria is a list of things that a product must have.<br><br>**Teacher:**<br>• A product or project is usually guided by a set of design criteria. | • Different joining techniques can be used to attach wheels and axles to chassis.<br><br>**Teacher:**<br>• A mechanism is a device that takes one type of motion or force and produces a different one.<br>• A mechanism makes a job easier to do.<br>• Wheels must be freely moving for the mechanism to work. | • A finished product can be checked against design criteria to see how successfully it has been made or to evaluate how well it works.<br><br>**Teacher:**<br>• Improvements can then be planned. |
| **Assessment**<br>Cumulative quiz. Retrieval practice. | | |