Year 3 – Levers and linkage cards		
National Curriculum	**Composite – The knowledge they need to know**	**Component- What needs to be covered**
Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world **(throughout)**	How to use linkages to make everyday life easier.	What levers and linkages are. How to use linkages to create a themed card. How to use split pins to form a linkage. How to evaluate their learning (using paired talk and prompt questions) A lever is an arm which moves around a pivot
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	How to use prototypes to develop ideas and build on knowledge.	What levers and linkages are. How to use linkages to create a themed card. How to use split pins to form a linkage. How to evaluate their learning (using paired talk and prompt questions) A lever is an arm which moves around a pivot
Critique, evaluate and test their ideas and products and the work of others **(Lesson 6)**	How to critique a product proactively. How to reflect on own work and work of others. How to suggest improvements to own and others work. How to justify thinking.	Children to test and reflect on how well their card meets the criteria and purpose of the project.
Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups **(throughout, lesson 3 and 4)**	How to design for a purpose. How to use different materials for a purpose. How to join and cut accurately and safely. How to produce a product to a high finish. How to produce a product that fulfils a purpose.	To design a Christmas themed card that uses a lever and linkage to move a part of the card. Children to select which part of their card moves and to make deliberate choices around how this should be decorated. All children should have a working Christmas themed card by the end of the two lessons. Children should confidently be able to use linkages for a purpose.
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **(lesson 3-5)**	How to design for a purpose. How to use different materials for a purpose. How to join and cut accurately and safely. How to produce a product to a high finish. How to produce a product that fulfils a purpose.	To design a Christmas themed card that uses a lever and linkage to move a part of the card. Children to select which part of their card moves and to make deliberate choices around how this should be decorated.

		All children should have a working Christmas themed card by the end of the two lessons. Children should confidently be able to use linkages for a purpose.
select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **(lesson 4,5)**	How to join and cut accurately and safely. How to produce a product to a high finish. How to produce a product that fulfils a purpose.	All children should have a working Christmas themed card by the end of the two lessons. Children should confidently be able to use linkages for a purpose.
Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **(lesson 4,5)**	How to join and cut accurately and safely. How to produce a product to a high finish. How to produce a product that fulfils a purpose.	All children should have a working Christmas themed card by the end of the two lessons. Children should confidently be able to use linkages for a purpose.
Investigate and analyse a range of existing products—leads into design, research lesson **(Lesson 3)**	How to design for a purpose. How to use different materials for a purpose.	To design a Christmas themed card that uses a lever and linkage to move a part of the card. Children to select which part of their card moves and to make deliberate choices around how this should be decorated.
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work **(Lesson 6)**	How to critique a product proactively. How to reflect on own work and work of others. How to suggest improvements to own and others work. How to justify thinking.	Children to test and reflect on how well their card meets the criteria and purpose of the project.
Understand how key events and individuals in design and technology have helped shape the world **(Lesson 1)**	What we mean by lever and linkages. How to create levers and linkages. How to use scissors safely and accurately. How to join materials effectively.	To understand what levers and linkage means and what they are used for. To recognise levers and linkages that are around us. To understand what they are going to produce. To have made one linkage design.
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures **(Lesson 1, 2,3)**	What we mean by lever and linkages. How to create levers and linkages. How to use scissors safely and accurately. How to join materials effectively. Alternative methods for levers and linkages. How to design for a purpose.	To understand what levers and linkage means and what they are used for. To recognise levers and linkages that are around us. To understand what they are going to produce.

	How to use different materials for a purpose.	To have made one linkage design. To understand what linkage means and what it is used for. To recognise levers and linkages that are around us. To understand what they are going to produce. To have made one linkage design. To design a Christmas themed card that uses a lever and linkage to move a part of the card. Children to select which part of their card moves and to make deliberate choices around how this should be decorated.

Year 4 – 3D Picture frame

National Curriculum	Composite - knowledge	Component – what needs to be taught
- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world **(Throughout)** - 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 **(throughout)**	To saw safely. To attach materials together. Use wood to make a 3D structure.	All children to be able to measure and cut wood. All children to be able to safely use a hacksaw. All children to be able to safely use a bench hook. All children to be able to join pieces of wood together using appropriate materials.
Critique, evaluate and test their ideas and products and the work of others **(Lesson 4,5,6)**	Showcase their work to a partner. Evaluate against whether it is fit for purpose.	Children can evaluate the finished product using the evaluation criteria. To have a finished frame that can stand up on its own. Children can follow instructions and join their frames together.
use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups **(Lesson 1,2)**	To plan and design a photo frame for a purpose. To identify features of photo frames, materials they are made from and how they are joined.	To be able to identify features of frames that they like. To be able to tell the difference between different frames and have an idea why this may be. Children complete plan to outline the design of their photo frame.
generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **(Lesson 4,5,6)** apply their understanding of how to strengthen, stiffen and reinforce more complex structures **(Lesson 4,5)**	To assemble my frame with accuracy and precision. To be able to evaluate a finished product against the original design.	Children can evaluate the finished product using the evaluation criteria. To have a finished frame that can stand up on its own. Children can follow instructions and join their frames together.

Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **(Lesson 3,4)** Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **(Lesson 3,4)**	To measure and cut wood accurately. To assemble my frame with accuracy and precision.	Children can follow instructions and join their frames together. To measure and cut accurately using a cm ruler. To join materials using PVA, lynx joiner and precision.
investigate and analyse a range of existing products **(Lesson 1)** understand how key events and individuals in design and technology have helped shape the world **(Lesson 1)**	To identify features of photo frames, materials they are made from and how they are joined.	To be able to identify features of frames that they like. To be able to tell the difference between different frames and have an idea why this may be.
evaluate their ideas and products against their own design criteria and consider the views of others to improve their work **(Lesson 6)**	To be able to evaluate a finished product against the original design.	Children can evaluate the finished product using the evaluation criteria.

Year 5 – Race car

National Curriculum	Composite	Component
Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world **(Throughout)** 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 **(Throughout)**	To research and identify designs of a race car To use research to guide my designs of a self-propelling race car To cut and join wood safely and accurately To test and improve my design. I can evaluate and critique mine and others products constructively.	To identify features of a race car that they like. To begin to understand why an elastic band is a good material to use and why. To have a completed design of their race car. Annotate sketches to specifically detail plans. To have a build model of their design.
Critique, evaluate and test their ideas and products and the work of others **(Lessons 1,4,5)**	To research and identify designs of a race car To test and improve my design. I can evaluate and critique mine and others products constructively.	To identify features of a race car that they like. To begin to understand why an elastic band is a good material to use and why. To have raced and evaluated their design.
use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups **(Lesson 1)**	To research and identify designs of a race car	To identify features of a race car that they like. To begin to understand why an elastic band is a good material to use and why.
generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **(Lesson 1, 2)**	To research and identify designs of a race car To use research to guide my designs of a self-propelling race car	To identify features of a race car that they like. To begin to understand why an elastic band is a good material to use and why. To have a completed design of their race car. Annotate sketches to specifically detail plans.
select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **(Lesson 2,3,4)**	To use research to guide my designs of a self-propelling race car To cut and join wood safely and accurately To test and improve my design.	To have a completed design of their race car. Annotate sketches to specifically detail plans. To have a build model of their design.
select from and use a wider range of materials and components, including construction	To use research to guide my designs of a self-propelling race car To cut and join wood safely and accurately	To have a completed design of their race car. Annotate sketches to specifically detail plans.

materials, textiles and ingredients, according to their functional properties and aesthetic qualities **(Lesson 2,3)**		To have a build model of their design.
investigate and analyse a range of existing products **(Lesson 1)** understand how key events and individuals in design and technology have helped shape the world **(Lesson 1)**	To research and identify designs of a race car	To identify features of a race car that they like. To begin to understand why an elastic band is a good material to use and why.
evaluate their ideas and products against their own design criteria and consider the views of others to improve their work **(Lesson 5)**	I can evaluate and critique mine and others products constructively.	To have raced and evaluated their design.
apply their understanding of how to strengthen, stiffen and reinforce more complex structures **(Lesson 2,3,4)**	To use research to guide my designs of a self-propelling race car To cut and join wood safely and accurately To test and improve my design.	To have a completed design of their race car. Annotate sketches to specifically detail plans. To have a build model of their design.
understand and use mechanical systems in their products **(Lesson 3)**	To cut and join wood safely and accurately	To have a build model of their design.

Year 6 – Anderson shelter

National Curriculum	Composite	Component
- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world **(Throughout)** - 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 **(Throughout)**	To investigate different shelters and identify their features. To understand what an Anderson shelter is and what features make them effective.	To be able to recognise that some shelter constructions are stronger than others. To be able to recognise that a bomb raid shelter needs to withstand significant damage and keep the people inside safe. To identify materials that would be best used for this project.
Critique, evaluate and test their ideas and products and the work of others **(Lesson 6)**	To evaluate and critique mine and others products constructively.	Children to be able to identify if their shelters are strong. Children to identify features they thought worked well or needed to be improved. Children to be able suggest improvements to their own and others work.
use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups **(Lesson 2, 3)**	To plan and design Anderson shelter	produce several clear design ideas, including step by-step lists of what needs to be done and lists of resources to be used
generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **(Lesson 2,3,4)**	To plan and design Anderson shelter	Produce several clear design ideas, including step by-step lists of what needs to be done and lists of resources to be used
select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **(Lesson 4,5)** - select from and use a wider range of materials and components, including construction	To build a strong Anderson shelter model.	To apply knowledge of sawing, measuring and joining accurately. evaluate their own and other children's shelters identifying what is and what is not working, including appearance

materials, textiles and ingredients, according to their functional properties and aesthetic qualities **(Lesson 4,5)**		
investigate and analyse a range of existing products **(Lesson 1)** understand how key events and individuals in design and technology have helped shape the world **(Lesson 1)**	To investigate different shelters and identify their features. To understand what an Anderson shelter is and what features make them effective.	To be able to recognise that some shelter constructions are stronger than others. To be able to recognise that a bomb raid shelter needs to withstand significant damage and keep the people inside safe. To identify materials that would be best used for this project.
evaluate their ideas and products against their own design criteria and consider the views of others to improve their work **(Lesson 6)**	To evaluate and critique mine and others products constructively.	evaluate their own and other children's shelters identifying what is and what is not working, including appearance Children to be able to identify if their shelters are strong. Children to identify features they thought worked well or needed to be improved. Children to be able suggest improvements to their own and others work.