



1

Knowledge and Skill Map Year 5 DT



Moving Mechanism Autumn 2B

Innovate Challenge
Designing and making a pneumatic prototype

Skills:

- Build a framework using a range of materials to support mechanisms.
- Explain the functionality and purpose of safety features on a range of products.
- Name and select increasingly appropriate tools for a task and use them safely.
- Select and combine materials with precision.
- Survey users in a range of focus groups and compare results.
- Test and evaluate products against a detailed design specification and make adaptations as they develop the product.
- Use mechanical systems in their products, such as pneumatics.

Core Knowledge:

- Mechanisms and systems can work together to perform a function.
- A strong and stable structure is necessary to support mechanisms in a machine.
- Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria.
- Testing a product against the design criteria will highlight anything that needs improvement or redesign.
- A pneumatic system uses compressed air to exert a force.
- Pneumatic systems can be used to lift heavy loads, raise and lower platforms or soften a force by acting as a shock absorber.

Depth:

- Develop the creative, technical, and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.

2



Eat the Seasons Spring 4B

Innovate Challenge
Designing and making a seasonal soup

Skills:

- Describe what seasonality means and explain some of the reasons why it is beneficial.
- Evaluate meals and consider if they contribute towards a balanced diet.
- Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish.
- Evaluate meals and consider if they contribute towards a balanced diet.

Core Knowledge:

- Seasonality is the time of year when the harvest or flavour of a type of food is at its best.
- A balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct proportions.
- Sweet dishes are usually desserts, such as cakes, fruit pies and trifles.
- Savoury dishes usually have a salty or spicy flavour rather than a sweet one.
- A balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct proportions.

Depth:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.

3



Architecture

Summer 6B

Innovate Challenge

Building design

Skills:

- Build a framework using a range of materials to support mechanisms.
- Describe the social influence of a significant designer or inventor.
- Explain how the design of a product has been influenced by the culture or society in which it was designed or made.
- Select and combine materials with precision.
- Test and evaluate products against a detailed design specification and make adaptations as they develop the product.
- Use pattern pieces and computer-aided design packages to design a product.
- Describe and discuss how different artists and cultures have used a range of visual elements in their work.

Core Knowledge:

- Support, stiffness and stability can be created by using triangular shapes to create strong frameworks, columns to support roofs and overlapping brickwork patterns.
- A Roman architect called Vitruvius said that successful buildings should have firmitas (stability), utilitas (useful space) and venustas (an attractive appearance).
- The design of products needs to take into account the culture of the target audience.
- The ancient Greeks developed the Classical form of architecture that has been copied for thousands of years.
- Testing a product against the design criteria will highlight anything that needs improvement or redesign.
- Computer-aided design (CAD) is the use of specialised computer software to design objects.
- CAD designs can also be made into objects using 3-D printers.
- Architecture is defined by different styles often linked to periods of time. Each period uses visual elements to create its own style.
- Different types of architectural design include examples such as, Classical architecture (c850 BC–cAD 470), Gothic architecture (1100–1500), Renaissance architecture (1400–1600), Baroque architecture (1600–1830) and Postmodern architecture (1960–1990).
- The ancient Greeks developed the Classical form of architecture that has been copied for thousands of years.

Depth:

Develop the creative, technical, and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.