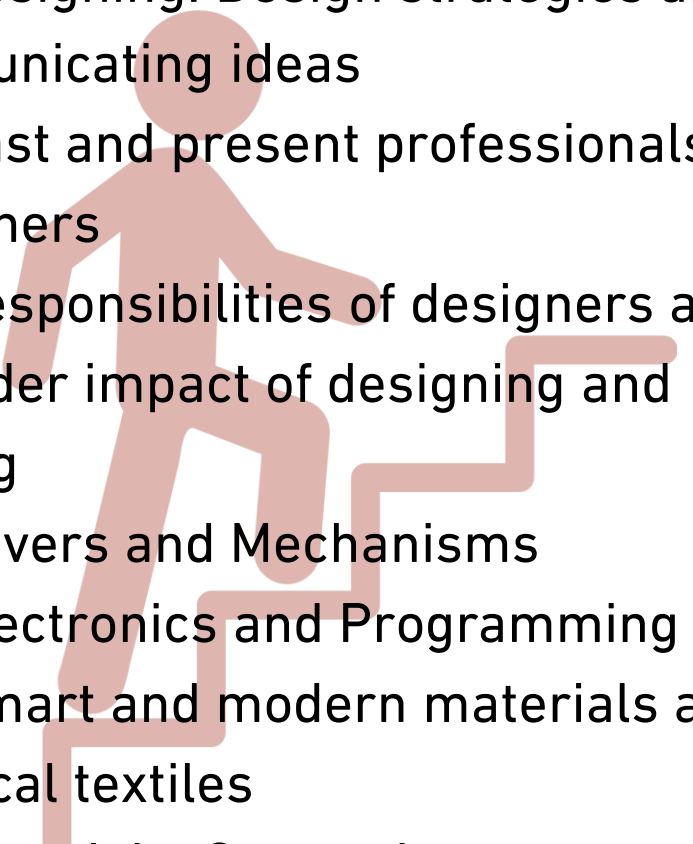


Our KS3 curriculum is based on an iterative design process and relevant project-based learning, that covers the National Curriculum for Design and Technology. We believe that all pupils should have the opportunities to be innovative and passionate when designing and making to develop new and transferable skills, knowledge, curiosity and inspiration. Pupils have access to a rich curriculum that offers challenge and excitement in order to foster creative and critical thinkers needed for the 21st century. Across all areas of technology, we give pupils the opportunity to create, innovate, design, make and evaluate. We aim to promote independent learners who use their initiative, with the ability to think on their feet and solve problems which may arise throughout the process.

SUPPORT AT HOME

THRESHOLD CONCEPTS


- 
- TC1 Users, needs & design contexts
 - TC2 Designing: Design strategies and communicating ideas
 - TC3 Past and present professionals and others
 - TC4 Responsibilities of designers and the wider impact of designing and making
 - TC5 Levers and Mechanisms
 - TC6 Electronics and Programming
 - TC7 Smart and modern materials and technical textiles
 - TC8 Materials: Categories, sources and origins, selection and properties
 - TC9 Forces and Stresses
 - TC10 Making: Working with specialist materials and techniques.

- Students are regularly set homework planned to extend and bring together their learning in class. Visits to art galleries and museums. Independent research on artists designers, materials, techniques and processes. Cooking at home - bbc good food/foodafactoflife. Support with homework tasks
- Youtube - Tesco Eat Happy / War on plastic / drowning in plastic
- www.stem.org.uk
- bbc.co.uk/bitesize
- <https://www.educationquizzes.com/ks3/d-and-t/>
- BBC News - <https://www.bbc.co.uk/news/technology>
- Introduction to Isometric Drawing - Youtube <https://www.youtube.com/watch?v=LY5OqKhEP9k>
- Simple Pewter Casting - Instructables <https://www.instructables.com/id/Simple-Pewter-casting/>

CURRICULUM LINKS

- Art: Past and present artists/designers. Communication of design ideas, rendering skills, observational drawing, perspective drawing, 3D modelling techniques
- Maths: 3D and mathematical modelling, costings. Units and measurements. Calculations, Time. Use of geometry and angles in mathematics.
- Geography: Sustainability. Social, cultural and moral issues.
- RS: Different cultures
- English: Reading subject specific text, instructions, analysis and evaluation. Verbal and written communication
- Science: appropriate use of scientific terms. Mechanical systems, material properties
- Business Studies: Enterprise. Client needs/wants
- IT: CAD designing, 2D Design software, Google Sketchup modelling, programming.

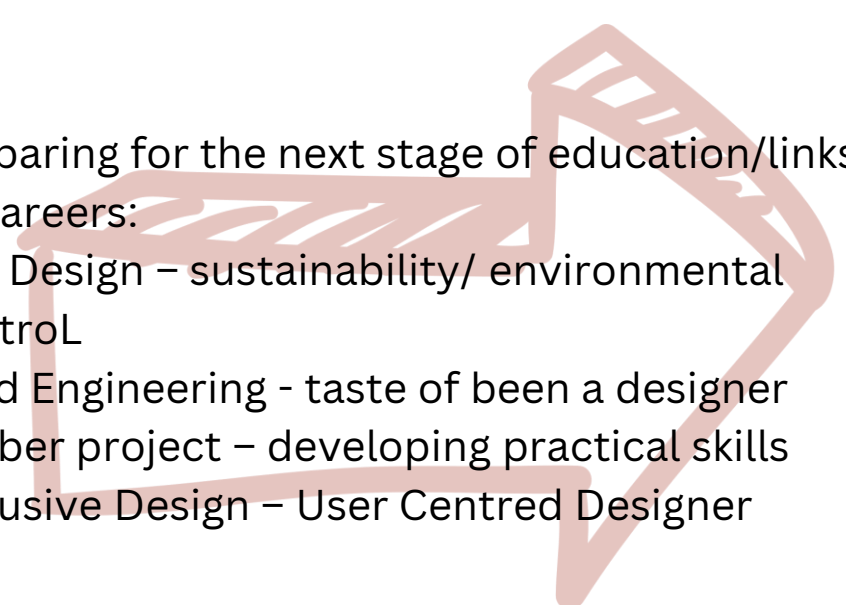
ENRICHMENT

- 
- Trips
 - Guest speaker- visiting artists/designers
 - Chef of the year
 - Cookery Club
 - Textile Club
 - Design and Technology Club

PERSONAL DEVELOPMENT

- It is the intention of the Design and Technology department to provide opportunities for students to express their individuality through design, creativity and developing personal preferences while being aware of others' beliefs, diversity, values and morality.
- Creative design skills and practical application allow students to develop their cognitive skills, decision making skills along with a general sense of wellbeing while expressing themselves.
- We encourage students to try new ideas, explore different avenues, develop communication skills and make mistakes.
- Students will become confident in expressing themselves through their design and making work and their creative journey.
- Learners will be encouraged to develop a love for design and technology.

CAREERS



Preparing for the next stage of education/links to careers:

- Eco Design – sustainability/ environmental control
- Card Engineering - taste of been a designer
- Timber project – developing practical skills
- Inclusive Design – User Centred Designer

WHAT

DT (A)
 Eco Design: environmental and sustainability issues when designing. United Nations' Sustainable Development Goals. environmental, social and cultural impact of a range of products. life-cycle analysis. Redesign a product to improve its sustainability. Create products for the school allotment

- Bots- Stock forms. Physical properties of types of wood. Using hand tools, measuring and cutting. Health & Safety in the workshop. Quality control. Working properties of timber.

WHY

Morality and value is covered in Eco Design which centres around the environment and sustainability. Students will develop knowledge of stock forms of timber, apply knowledge to design sketches and product practical that meets industry standards and fit for purpose. Allow students to understand ways that materials can affect selection through working properties, as well as functional, aesthetic, environmental, availability, cost, social, cultural and ethical.

Students will have to consider the impact of forces and stresses in timber and adapt designs to overcome these challenges by considering reinforcement and stiffening key pieces. Students will gain specific knowledge of manufacturing and natural timber adding to their broadening knowledge of material areas. Students will use reasoning to calculate the economic advantage of using one method of production over another.

Teach students about safe working practices and to develop hand on skills with practical machinery, specialist tools and processes. So, students can develop confidence in practical life skills.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Design
 Technology
 Sustainability
 Environment
 Climate change
 Rethink
 Lifecycle
 Analysis
 Quality
 Assurance
 Economic
 Accuracy

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

WHAT

WHY

HOW

VOCABULARY

READING SKILLS

DT(B)

- Core Drawing Skills. Drawing basic and complex shapes, isometric drawing, rendering, and annotation. Difference between freehand and technical drawing.
- Card engineering - pop up card mechanisms, motions, properties of paper and boards, product analysis, analysing existing designers.
- Inclusive Design - exploring real -life design problems. Designing for a range of users and making designs accessible for all.

Why is this taught:

Allow students to foster a love for creativity and embrace the creative process by developing skills through communication of ideas using a range of strategies such as annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations.

Students will explore mechanisms through experimentation and iterative design to understand changes in movement and force. To develop understand the impact of forces on how mechanical systems enable changes in movement and force and apply reinforcing and stiffened if required. In Inclusive Design Unit students are introduced to the concept of design needs and wants. Looking at humanity with a critical eye and highlighting basic needs and solutions and then discriminately categorising wants into priority groups.

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

Visual communication
Render
Sketch
Technical
Reciprocating
Linear
Rotary
Oscillating
Mechanism
Inclusive
Design inclusion

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation



- This covers the introduction to the kitchen environment, food safety and safe working, establishing routines and building basic culinary skills. It considers food safety through personal hygiene and the 4 Cs, as well as investigating healthy eating principles.
- Practical lessons have students making fruit salad, gnocchi bake, spaghetti bolognaise & Fruit crumble.

This unit allows pupils to understand the Health and safety precautions needed in food technology and how pupils will work effectively and safely.

Pupils will understand the safety precautions when using knives, hob and oven to cook a variety of dishes.

Pupils will develop a clear understanding of nutrition and the needs of each food group in the diet. Pupils will investigate portion sizes linked to 5 a day and be able to identify each of the food groups and its need and function in the body.

Pupils will develop a wide range of practical skills throughout the topic and develop key skills such as health and safety in a classroom, personal hygiene when cooking, knife skills, using a hob/oven safely, how to adapt & season dishes.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Weighing
Measuring
Bacteria
Hygiene
Equipment
Healthy
Knife
Scales
Cross contamination
Bolognaise

READING SKILLS



- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification

WHAT

- **Plastic Fantastic**- Make a pen holder using the line bender. Physical properties of types of plastic. Using hand tools, measuring, and cutting, templates. Using the drilling machine. Health & Safety in the workshop. Quality control and assurance
- **Cleaning up the oceans** - Properties and uses of plastic. Environmental impacts of plastics and alternatives, linked to sustainability. Context analysis- designing using a real-world problem and creating solutions using 5 w's to analyse problems. sustainability, analyse designers who make products using ocean plastic. Biomimicry
- **Textile creatures** understand the wider role of textiles in everyday lives, beyond fashion and furnishing. Investigate technical textiles for specific uses and demonstrate an understanding of the wider use of textiles. Examples from a range of industries are used to illustrate different uses and applications. Manufacturing skills developing co-ordination and accuracy.

WHY

In Plastic Fantastic students learn how to apply knowledge of materials and production processes to design products and produce practical solutions that are fit for purpose. Introduce students to the theory of good design, existing solutions, and technological knowledge to develop innovative products and processes. Through risk taking and exploration, students develop ideas using iterative design methods. Designs are encouraged to be experimental while using knowledge of materials, components and meeting the needs of a user. Teach students about safe working practices and to develop hand on skills with practical machinery, specialist tools and processes. So, students can develop confidence in practical life skills.

Allow students to discover and understanding that designing and making has aesthetic, environmental, technical, economic, ethical, and social dimensions and impacts on the world. Foster an analytical mind that develops an understanding that products and systems have an impact on quality of life. While exploring how products are made and produced with influences from historical practices, current design trends and how new and emerging technology enhance this process.

Morality and values are covered in Cleaning up the Oceans which centres around the environment and sustainability.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Synthetic
Accuracy
Hazard
Risk assessment
Fibres
Performance
Industry
Standardisation
Fast fashion
User centred
approach

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation



WHAT

•**Exploring pattern-** CAD/CAM. Design skills, both hand and computer aided. Printing methods, repeat patterns. How to create patterns using CAD/CAM.

•**Book Page** - make a product for as an educational children's toy, research customer needs. Numeracy - how to cost a product. How to work as part of a team. Safe and effective use of textiles equipment and processes. Relevant testing of prototypes. This project could be done as a business enterprise idea with the students working towards selling their products at the end e.g., charity event.

•**CAD/CAM-**

Advantages/disadvantages of CAD. Using CAD software to model and test their design. Comparing hand draw net to CAD draw. Using 3D google sketch up, 2D design. Introduction to the laser cutter.

WHY

Students learn how to apply knowledge of materials and production processes to design products and produce practical solutions that are fit for purpose. Teach students about safe working practices and to develop hand on skills with practical machinery, specialist tools and processes. So, students can develop confidence in practical life skills.

Develop understanding of industrial production techniques and apply to team practical activity. Understand and critically evaluate economically the production cost of a product and how this impacts the final sale price.

Students further develop their knowledge of the theory of good design, existing solutions, and technological knowledge to develop innovative products and processes. Through risk taking and exploration, students develop ideas using iterative design methods. Designs are encouraged to be experimental while using knowledge of materials, components and meeting the needs of a user.

Students develop skills in effective ways of communicating concepts using a range of strategies such as annotated sketches, detailed plans, 3-D and mathematical modelling.

Allow students to analyse existing designer products to further develop an understanding that designing and making has aesthetic, environmental, technical, economic, ethical, and social dimensions and impacts on the world.

Students are allowed to explore the needs and wants of a diverse cultural background and major environmental issues they face with flooded farmland and settlements. Students develop a practical solution that enhances their user's life through experimentation, exploration of different structural, physical properties and material functionality

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Applique
Quality control
Embellishments
Computer aided design
Computer aided manufacture
Technical
Iterative design
Accuracy
Evaluate
Specification
Brief

READING SKILLS

-
- Selection
 - Inference
 - Analysis
 - Information Retrieval
 - Vocabulary Development
 - Justification
 - Evaluation

WHAT

Prototype Chair Analysis of famous household products. Develop designs based around the product as inspiration and new specifications. Drawing and rendering skills, model making and testing and evaluation of prototypes, connecting artists, designers, and design eras to own ideas. Working safely and independently, critically evaluation of peer work and determining success against user brief and specification.

WHY

In prototype chair students learn how to apply knowledge of materials and production processes to design products and produce practical solutions that are fit for purpose. Introduce students to the theory of good design and design process, existing solutions, and technological knowledge to develop innovative products and processes. Through risk taking and exploration, students develop ideas using iterative design methods. Designs are encouraged to be experimental while using knowledge of materials, components and meeting the needs of a user. Teach students about safe working practices and to develop hand on skills with practical machinery, specialist tools and processes. So, students can develop confidence in practical life skills.

Allow students to discover and understanding that designing and making has aesthetic, environmental, technical, economic, ethical, and social dimensions and impacts on the world. Foster an analytical mind that develops an understanding that products and systems have an impact on quality of life. While exploring how products are made and produced with influences from historical practices, current design trends and how new and emerging technology enhance this process.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Prototype
Brief
Evaluate
Analysis
Design (noun, Verb, adjective)
Iterative process
User centred approach

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

WHAT

Students will investigate the Eatwell guide and take a more indepth look at each nutrient and its function in the body. Students practical sessions will link to each nutrient to develop their understanding further. Students will look at making healthy swaps within food choices and how to adapt dishes to lower fat and sugar content.

Practical's will include Jambalaya, Curry, Pizza & scones

Key Learning: Developing a wider knowledge of diet, healthy eating and the functions of nutrient in the body. Wider range of ingredients and cooking methods.

Skills: preparation and cooking of a variety of ingredients, applying good food safety practices, researching suitable dishes, handling high risk foods.

SUMMER

WHY

Students will continue to develop their knowledge and understanding of a range of nutrients, diets, and healthy eating.

Throughout the rotation students will develop a range of preparation and cookery methods linked to different nutritional dishes. They will be able to list the sources and functions of a range of nutrients in the diet and explain the different needs linked to life stages.

Pupils will begin to develop their knowledge and understanding of special diets.

TERM 3: FOOD TECHNOLOGY

THRESHOLD CONCEPTS : TC1, TC2, TC4, TC8, TC10

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Fat
Protein
Carbohydrates
Vitamins
Minerals
Vegetarian
Vegan
Calcium
Nutrition
Kneading

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation



WHAT

•**Timber Project** technical knowledge, sources, properties, and uses of a range of woods. Knowledge recalls physical properties of a range of wood types. Make a phone holder. Measuring and marking out (numeracy). Using hand tools, measuring, and cutting. Health & Safety in the workshop. Quality control.

•**Systems and control** - crumble kits. Components and flow diagrams. Recognition of basic electronic components. Recognition of input, process, and output components. How electrical and electronic systems/circuit's function and can be manufactured. computing to program, monitor and control their products. [e.g., circuits with heat, light, sound & movement as inputs & outputs] Apply computing & use electronics to embed intelligence in products that respond to inputs [e.g., sensors], & control outputs [e.g., motors] using programmable components products [e.g., microcontrollers].

WHY

students learn how to apply knowledge of materials and production processes to design products and produce practical solutions that are fit for purpose. Teach students about safe working practices and to develop hand on skills with practical machinery, specialist tools and processes. So, students can develop confidence in practical life skills.

Develop understanding of industrial production techniques and apply to team practical activity. Understand and critically evaluate economically the production cost of a product and how this impacts the final sale price.

Students further develop their knowledge of the theory of good design, existing solutions, and technological knowledge to develop innovative products and processes. Through risk taking and exploration, students develop ideas using iterative design methods. Designs are encouraged to be experimental while using knowledge of materials, components and meeting the needs of a user.

Students develop skills in effective ways of communicating concepts using a range of strategies such as annotated sketches, detailed plans, 3-D and mathematical modelling.

Allow students to analyse existing designer products to further develop an understanding that designing and making has aesthetic, environmental, technical, economic, ethical, and social dimensions and impacts on the world.

Students are allowed to explore the needs and wants of a diverse cultural background and major environmental issues they face with flooded farmland and settlements. Students develop a practical solution that enhances their user's life through experimentation, exploration of different structural, physical properties and material functionality.

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Component

Electronic

Algorithm

LDR

Sensor

Microcontroller

programmable

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

WHAT

WHY

HOW

•Composite Project

technical knowledge, sources, properties, and uses of a range of new, composite, and smart materials. Knowledge recalls physical properties of a range of types. Make a candle holder out of concrete. Measuring and marking out (numeracy). Using hand tools, measuring, and cutting. Health & Safety in the workshop. Quality control.

•CAD/CAM-

Advantages/disadvantages of CAD. Using CAD software to model and test their design. Comparing hand draw net to CAD draw. Using 3D google sketch up, 2D design. Introduction to the laser cutter.

In Composite Project students learn how to apply knowledge of materials and production processes to design products and produce practical solutions that are fit for purpose.

Introduce students to the theory of good design, existing solutions, and technological knowledge to develop innovative products and processes. Through risk taking and exploration, students develop ideas using iterative design methods. Designs are encouraged to be experimental while using knowledge of materials, components and meeting the needs of a user.

Teach students about safe working practices and to develop hand on skills with practical machinery, specialist tools and processes. So, students can develop confidence in practical life skills.

Allow students to discover and understanding that computer aided manufacture is critical in careers and industry.

Foster an analytical mind that develops an understanding that products and systems have an impact on quality of life. While exploring how products are made and produced with influences from historical practices, current design trends and how new and emerging technology enhance this process.

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
- Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Composite

Smart material

New and modern technology

Computer aided design

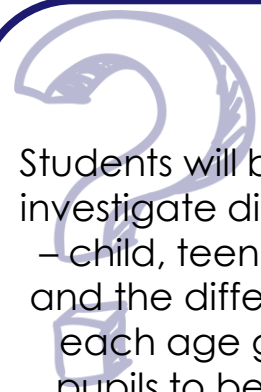
Computer aided manufacture

Technical

READING SKILLS

- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation

WHAT



Students will be required to research and investigate diets through life stages – child, teenager, adult & elderly and the different dietary needs of each age group. This will allow pupils to begin to develop and adapt dishes based on these diets.

Focus will then move to medical diets (coeliac, diabetic), religious beliefs and choices such as vegetarian and vegan. Students will be able to adapt and explain how they would adapt a range of dishes for each.

Practicals will focus on Fake-away – chow mein, burrito, sweet & sour and Macaroni cheese and Bake Off – cinnamon buns, pastry, sausage rolls and Chocolate brownie.

For each practical pupils will evaluate their skills and suggest ways to improve and adapt their products.

Pupils will also look at types of food service and they most suitable types of dishes for each

Key Learning: Special diets and adapting dishes

WHY



Developing a wider knowledge of special diets and the reasons why diets are followed and the issues linked to not following a diet.

Students will be able to suggest adaptations and changes in all dishes and how these can be suitable for each age group and dietary need leading to pupils adapting their own baked product.

Students will be able to confidently and capably cooking with the hob and oven and focus will be given to precision of knife skills hygiene practices and completing multiple skills.

Students will also develop knowledge of sources of ingredients such as fairtrade, organic, Red Tractor and be able to discuss the benefits and issues of each

HOW

ASSESSMENT

- Half term assessment - progress test.
- Low-stakes formative and interleaving present throughout - knowledge and understanding quizzes, questioning, cold call
 - Homework quizzes after topics to check retention and understanding. This will be used to close gaps in students' understanding.

VOCABULARY

Coeliac
Diabetes
Lactose intolerance
Evaluation
Contingency
Quality
Adaption
Environmental
Recycling
waitress

READING SKILLS



- Selection
- Inference
- Analysis
- Information Retrieval
- Vocabulary Development
- Justification
- Evaluation