

## Villa Real School Design and Technology Big Picture

### Design Technology Scheme of Work for Villa Real School

The following overview has been compiled using the National Curriculum guidelines for EYFS to Key Stage 3. The activities planned ensure a full curriculum coverage for each Key Stage throughout the year. Activities increase in difficulty and depth of knowledge required as students move through the key stages. Class managers are expected to apply differentiation within all aspects of their D&T lessons to ensure appropriate levels of challenge. The following activities simply outline the key elements of the lessons for each Key Stage.

### Design Technology Overview Early Years Foundation Stage

#### **EYFS Framework Requirements:** Understanding the World and Expressive Arts and Design

TERM	Autumn	Spring	Summer
17 - 18	<p><b>Focus:</b> Cooking</p> <p>Beginning to understand some of the tools, techniques and processes involved in food preparation. Children should practise stirring, mixing, pouring and blending ingredients during cookery activities.</p> <p><b>Suggested activity:</b> Baking cakes/biscuits, mud kitchen.</p>	<p><b>Focus:</b> Structure and Joins</p> <p>Observing closely and replicating a structure.</p> <p><b>Suggested activity:</b> Using junk modelling to make different objects e.g. a house.</p>	<p><b>Focus:</b> Construction</p> <p>Learning to construct with a purpose in mind.</p> <p><b>Suggested activity:</b> Using scissors, glue, string and a hole-punch to make a bag to store items collected during a Forest School session.</p>
18 - 19	<p><b>Focus:</b> Construction</p> <p>Learning to construct with a purpose in mind.</p> <p><b>Suggested activity:</b> Making sandcastles,</p>	<p><b>Focus:</b> Using a Range of Tools</p> <p>Learning about planning and adapting initial ideas to make them better.</p> <p><b>Suggested activity:</b> Use a range of tools</p>	<p><b>Focus:</b> Cooking</p> <p>Beginning to understand some of the tools, techniques and processes involved in food preparation. Children should practise stirring, mixing,</p>

## Villa Real School Design and Technology Big Picture

	construction corner, Lego/Duplo.	including scissors, hole punch, stapler, glue spreader, rolling pin, cutter and grater.	pouring and blending ingredients during cookery activities.  <b>Suggested activity:</b> Making ice lollies.
19 - 20	<p><b>Focus:</b> Cooking</p> <p>Beginning to understand some of the tools, techniques and processes involved in food preparation. Children should practise stirring, mixing, pouring and blending ingredients during cookery activities.</p> <p><b>Suggested activity:</b> Making bread, using Play-Dough.</p>	<p><b>Focus:</b> Construction</p> <p>Learning to construct with a purpose in mind.</p> <p><b>Suggested activity:</b> Occasion cards e.g. Easter celebration cards.</p>	<p><b>Focus:</b> Structure and Joins</p> <p>Observing closely and replicating a structure.</p> <p><b>Suggested activity:</b> Using pipe cleaners to make a structure or object e.g. a person, an animal etc.</p>
20 - 21	<p><b>Focus:</b> Using a Range of Tools</p> <p>Learning about planning and adapting initial ideas to make them better.</p> <p><b>Suggested activity:</b> Use a range of tools including scissors, hole punch, stapler, glue spreader, rolling pin, cutter, grater, spade &amp; bucket.</p>	<p><b>Focus:</b> Cooking</p> <p>Beginning to understand some of the tools, techniques and processes involved in food preparation. Children should practise stirring, mixing, pouring and blending ingredients during cookery activities.</p> <p><b>Suggested activity:</b> Making a smoothie.</p>	<p><b>Focus:</b> Construction</p> <p>Learning to construct with a purpose in mind.</p> <p><b>Suggested activity:</b> Creating a den in the classroom using cardboard boxes or blankets.</p>

## Villa Real School Design and Technology Big Picture

### Design Technology Overview Key Stage 1

**Evaluation questions and ideas are very basic, the following MUST be included in the evaluation process within Key Stage 1:**

- Explore and evaluate a range of existing products.
- Evaluate their ideas and products against design criteria.

TERM	Autumn	Spring	Summer
17 - 18	<p><b>Focus:</b> Bridges (Structures)</p> <p><b>Designing:</b> Choosing materials based on strength and durability.</p> <p><b>Making:</b> Key skills here are joining and cutting materials.</p> <p><b>Evaluation:</b> The strength of the structure and how it could be made stronger.</p>	<p><b>Focus:</b> Cars/Carts (mechanisms with wheels)</p> <p><b>Designing:</b> Focussing on the element of movement. Looking at how wheels move and what the cart would need to work. Testing existing model cars. Which is the best and why?</p> <p><b>Making:</b> Key skills here are joining components to ensure movement.</p> <p><b>Evaluation:</b> The ease of movement of the cart. Students could race their carts to see which moves the furthest or the fastest.</p>	<p><b>Focus:</b> Healthy Snacks</p> <p><b>Designing:</b> Thinking about healthy balanced diets. Discussing likes and dislikes.</p> <p><b>Making:</b> Cutting, peeling, grating. Healthy, safety and hygiene in the kitchen.</p> <p><b>Evaluating:</b> How did it taste? What would you change? Was it healthy?</p>
18 - 19	<p><b>Focus:</b> Puppets (Mechanisms)</p> <p><b>Designing:</b> Decide what character your puppet will be. Look at which parts need to move and what you will use.</p> <p><b>Making:</b> Joining materials to make the puppet move (using lolly sticks and string)</p> <p><b>Evaluation:</b> Did it work well? What would you change? What materials did you</p>	<p><b>Focus:</b> Fruit Salad</p> <p><b>Designing:</b> Where do the different fruit come from? What will you use? What do you like/dislike? (Use talking mats)</p> <p><b>Making:</b> Cutting and peeling. Food hygiene and kitchen safety.</p> <p><b>Evaluating:</b> Was it nice? What would you change? Was it healthy?</p>	<p><b>Focus:</b> Dens (Structures)</p> <p><b>Designing:</b> How many people need to be in your den? How big will it be? What do you need inside? What do you have to make it with? What could you use?</p> <p><b>Making:</b> Work in teams to make your den. Focus on how well it will stay up.</p> <p><b>Evaluating:</b> Did you like your den? Who</p>

## Villa Real School Design and Technology Big Picture

	use? What did you find easy/hard?		had the best den? Why was that the best den? What could you do better next time? What didn't work well about your den?
19 - 20	<p style="text-align: center;"><b>Focus:</b> Making Sandwiches</p> <p><b>Designing:</b> What will you put in your sandwich? Think about healthy options. Look at the food groups and put the different elements of your sandwich in to the correct group.</p> <p><b>Making:</b> Cutting, peeling, grating, spreading. Safety in the kitchen and food hygiene.</p> <p><b>Evaluating:</b> Was it nice? What would you change? Was it healthy? What food groups did you use?</p>	<p style="text-align: center;"><b>Focus:</b> Sky Scrapers (Structures)</p> <p><b>Designing:</b> Look at photos skyscrapers. Draw your own skyscraper. Look at the features of a skyscraper (stable structure etc) and decide what you would need to make a skyscraper.</p> <p><b>Making:</b> Make using a range of materials. Students to focus on how they will join the materials to make the structure stable. How tall can you make it? Does it still stand?</p> <p><b>Evaluating:</b> Who built the tallest skyscraper? Are they strong? What could you use to make it stronger?</p>	<p style="text-align: center;"><b>Focus:</b> Catapults (Mechanisms)</p> <p><b>Designing:</b> What are/were catapults used for? Look at how they work and what you will need to make them.</p> <p><b>Making:</b> Make your catapults focusing on the lever mechanism.</p> <p><b>Evaluating:</b> How far did the catapult send the object? Did it work? How could you make it better? What could you do differently? What difference does the weight of the object make to the distance it has travelled?</p>
20 - 21	<p style="text-align: center;"><b>Focus:</b> Seesaw (Mechanisms)</p> <p><b>Designing:</b> Look at how a seesaw works and what you will need to make it. Draw what it will look like.</p> <p><b>Making:</b> Joining materials and creating an axis.</p> <p><b>Evaluating:</b> Did your seesaw work? How could it be made better?</p>	<p style="text-align: center;"><b>Focus:</b> Cereal Bars</p> <p><b>Designing:</b> Taste existing cereal bars and evaluate them. Packaging for your cereal bar.</p> <p><b>Making:</b> Cutting, mixing, using a blender, chilling in the fridge. Food hygiene and kitchen safety.</p> <p>Make the package for your cereal bar.</p> <p><b>Evaluating:</b> How it tastes. How it looks. Is it healthy? What would you change? Peer evaluation.</p>	<p style="text-align: center;"><b>Focus:</b> Marble Run (Structures)</p> <p><b>Designing:</b> Look at different marble runs and materials you could use to make marble runs. Think about what it will need to do and how the marble will roll. Design your marble run with the materials you have in mind.</p> <p><b>Making:</b> Work in teams to create marble runs. Make it as long as you can to see how far you can make the marble</p>

## Villa Real School Design and Technology Big Picture

			travel. Remember to join all of the pieces properly. <b>Evaluating:</b> Did it work? Whose was the longest? How could you improve it? What worked/didn't work?
--	--	--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------

### Design Technology Overview Key Stage 2

To fully achieve all aspects of the Design Technology curriculum, some aspects of ICT will be support by our ICT technician. Teachers will liaise with him to ensure the software we have available is current and appropriate for our students and curriculum.

**Evaluation questions and ideas are very basic, the following MUST be included in the evaluation process within Key Stage 2:**

- **Investigate** and **analyse** a range of existing products.
- Evaluate their ideas and products against their own design criteria and consider **the views of others** to **improve** their work.
- **Understand how key events and individuals in design and technology have helped shape the world.**

TERM	Autumn	Spring	Summer
17 - 18	<b>Focus:</b> Making Fidget Spinners  <b>Design:</b> Students to look at existing fidget spinners; what is good/bad about each? Design your fidget spinner based on this. What will it look like? How will it work? What will you need to make it? <b>Make:</b> Make your fidget spinner focusing on the mechanism and how it will move. <b>Evaluate:</b> Do you like your fidget spinner? Did it work? What could you do differently? How could it be improved?	<b>Focus:</b> Making Soup  <b>Design:</b> Taste different soups; what do you like/dislike? What could you put in your own soup? Try making a range of different soups. <b>Make:</b> Make your soup (a range of) using many different cooking techniques. <b>Evaluate:</b> Taste your soup. Was it nice? What would you change? What do others think of your soup? Is it healthy? Look at current chefs and their views on	<b>Focus:</b> Making Kites Using CAD  <b>Design:</b> Use a computer programme to design your kite (it could be as basic as Paint). What will you need to make your kite? <b>Make:</b> Make your kite focussing on using the correct materials for the purpose of the kite and the joins used. <b>Evaluate:</b> After flying your kites, discuss what happened. Did your kite work? What was good about it? What would

## Villa Real School Design and Technology Big Picture

	What do other people think of your fidget spinner? Who invented the fidget spinner? Why was it invented?	healthy eating.	you change? Did it match the design? Did anything change during the making process?
18 - 19	<p><b>Focus:</b> Making a Lighthouse</p> <p><b>Design:</b> Look at existing lighthouses; what is their purpose? What do they look like? How do they work? Decide what you will use to make your lighthouse and what it will look like. Explore the circuits and bulbs available and how to make them work.</p> <p><b>Make:</b> Create your lighthouse ensuring the circuit inside is working properly.</p> <p><b>Evaluate:</b> Was it easy or difficult to make? What did you find difficult? What did you enjoy? What would you do differently?</p>	<p><b>Focus:</b> Levers and Linkages</p> <p><b>Design:</b> Look at the different activity sheets. What will you make? What will it look like? What will you need to make it? What will it do? Practice making different levers and choose your favourite.</p> <p><b>Make:</b> Create your lever using a range of materials. Focus on problem solving how the materials will be joint to allow movement.</p> <p><b>Evaluate:</b> Did it work? What worked well/what could be changed? What would you do differently?</p>	<p><b>Focus:</b> Making Ice Cream and Ice Lollies</p> <p><b>Design:</b> Use talking mats to try different fruit. Talk about healthy and unhealthy food. How can you make healthy alternatives to your favourite food? Plan how you are going to make your ice cream or ice lollies and what you will need.</p> <p><b>Make:</b> Make your ice cream or ice lollies. Discuss the process of freezing. Use a blender and a range of other equipment or utensils. Focus on health and safety in the kitchen. Think about food hygiene and how to ensure your food is safe to eat.</p> <p><b>Evaluate:</b> What did they taste like? Were they healthy? How could they be better? What would you change?</p>
19 - 20	<p><b>Focus:</b> Making Pizza</p> <p><b>Design:</b> Look at healthy and unhealthy food options. What food do you like/dislike (talking mats) How could you make pizza healthier? Decide what you want to put on your pizza. Draw your pizza; what will it look like? What will you need to make it? Make a shopping list.</p>	<p><b>Focus:</b> Making a Toy Car with a Motor</p> <p><b>Design:</b> Design your car thinking about what it will look like and how it will work. What will you need to make it? How does a toy car work?</p> <p><b>Make:</b> Make your car and focus on the use of a motor. How does this work?</p> <p><b>Evaluate:</b> Do you like your car? Would</p>	<p><b>Focus:</b> Making Cams</p> <p><b>Design:</b> Investigate different cams and how they work. Design your own cam; how do you think it will move? What are cams used for?</p> <p><b>Make:</b> Try making different cams, see how each move and work.</p> <p><b>Evaluate:</b> What worked well? Describe</p>

## Villa Real School Design and Technology Big Picture

	<p><i>Extension: Design packaging for your pizza. Brand your new healthy pizza.</i></p> <p><b>Make:</b> Create your pizza practising a range of cooking skills. Focus on health and safety in the kitchen. Think about food hygiene and how to ensure your food is safe to eat.</p> <p><b>Evaluate:</b> Try your pizza; was it nice? What would you change? Was it healthy?</p>	<p>you change anything? Did it work? Was it easy or difficult to make?</p>	<p>the movement. How did you make it? Did it work? What would you change?</p>
Year 4	<p><b>Focus:</b> Making a Pulley (e.g. Flagpole)</p> <p><b>Design:</b> Look at how pulleys work and what you will need to make yours. What will your pulley be?</p> <p><b>Make:</b> Make your pulley and focus on the mechanism that makes it move. Ensure it moves effectively and smoothly.</p> <p><b>Evaluate:</b> Did it work? What worked well? What could you change?</p>	<p><b>Focus:</b> Making Quiche</p> <p><b>Design:</b> Talk about healthy and unhealthy food. Look at what you will need to make quiche. Make a shopping list. Decide what flavour quiche you will make. You could make a few different types of quiche to try.</p> <p><b>Make:</b> Make your quiches using a range of equipment and techniques. Focus on health and safety in the kitchen. Think about food hygiene and how to ensure your food is safe to eat.</p> <p><b>Evaluate:</b> Did you like your quiche? What would you change about it? What did you enjoy doing?</p>	<p><b>Focus:</b> Battery Operated Lights</p> <p><b>Design:</b> Look at different light systems and circuits. Discuss, analyse and explore how they work. Design your own circuits including lights. What are lights used for?</p> <p><b>Make:</b> Test your circuits to see if they work.</p> <p><b>Evaluate:</b> What does a circuit need to work? How do circuits work? What does the light do? How does the light work?</p>

## Villa Real School Design and Technology Big Picture

### Design Technology Overview Key Stage 3

**Evaluation questions and ideas are very basic, the following MUST be included in the evaluation process within Key Stage 3:**

- Analyse the work of **past and present professionals** and others to develop and broaden their understanding.
- **Investigate new and emerging technologies.**
- Test, evaluate and **refine** their ideas and products against **a specification**, taking into account the views of **intended users** and other interested groups.
- Understand **developments in design and technology**, its **impact** on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.

TERM	Autumn	Spring	Summer
17 - 18	<p><b>Focus:</b> Designing a Personal Mode of Transport</p> <p><b>Design:</b> Use CAD (computer aided design) to design your transport. Research modes of personal transport. What will you need? What will it look like? How will it work?</p> <p><b>Make:</b> Create a prototype of your mode of transport.</p> <p><b>Evaluate:</b> What did you enjoy about this? What would you change? Did it work or not? Does it match the design brief? What do others think of it? (Include market research) Think about the current issues with the environment in relation to transport and how your product would contribute to this.</p>	<p><b>Focus:</b> Designing and Making your own T-Shirt</p> <p><b>Design:</b> Think about your favourite things and your favourite colours etc. Design your t-shirt based on this. Use CAD where appropriate.</p> <p><b>Make:</b> Use premade t-shirts if it is not possible to make your own. Decorate the t-shirts based on your design.</p> <p><b>Evaluate:</b> Do you like it? Would you wear it? What could you improve? Look at the current issues within the fashion industry, how would you tackle these? Study other designers and gather their views. Carry out market research to gain views on your design.</p>	<p><b>Focus:</b> A Heathy Starter</p> <p><b>Design:</b> Think about what you could make for a healthy starter. Plan it and make a shopping list (go and buy ingredients if possible, if not budget for them)</p> <p><b>Make:</b> Make your starter. Think about how it will taste and look.</p> <p><b>Evaluate:</b> Was it good? Did it taste nice? Was it healthy? How could it be improved? Does it match the specification? What do current chefs think of healthy food? What do other people think of your product?</p>



## Villa Real School Design and Technology Big Picture

18 - 19	<p style="text-align: center;"><b>Focus:</b> The House</p> <p><b>Design:</b> Research on houses, either their own or other peoples. (You may use photography or sketches.) Use colour or collage. Cut out the shape of the house and model. Think about how the ball will enter the doors. (Measure the diameter of the golf ball). Think about how the house will stand up. (The house will have to be strong enough to take knocks from the golf ball, the house must have sides, a roof and a back.) Where applicable use measurements.</p> <p><b>Make:</b> Create your house. Focus on joining the materials and making it structurally strong.</p> <p><b>Evaluate:</b> Test them out. Did they work? What was good/bad about them? How could they be improved?</p>	<p style="text-align: center;"><b>Focus:</b> A Healthy Main Meal</p> <p><b>Design:</b> Think about what you could make for a healthy main meal. Plan it and make a shopping list (go and buy ingredients if possible, if not budget for them)</p> <p><b>Make:</b> Make your main meal. Think about how it will taste and look.</p> <p><b>Evaluate:</b> Was it good? Did it taste nice? Was it healthy? How could it be improved?</p>	<p style="text-align: center;"><b>Focus:</b> A Moving Boat</p> <p><b>Design:</b> Explore materials that float and think about the purpose of a boat. Look at design brief and discuss waterproofing. Design your boat using CAD.</p> <p><b>Make:</b> Make your boat based on your design. Focus on its ability to float and remain water proof. Use a motor to make it move where possible.</p> <p><b>Evaluate:</b> Did it work? What could you improve? What could you do differently?</p>
19 - 20	<p style="text-align: center;"><b>Focus:</b> A Healthy Desert</p> <p><b>Design:</b> Think about what you could make for a healthy desert. Plan it and make a shopping list (go and buy ingredients if possible, if not budget for them)</p> <p><b>Make:</b> Make your desert. Think about how it will taste and look.</p> <p><b>Evaluate:</b> Was it good? Did it taste nice? Was it healthy? How could it be improved?</p>	<p style="text-align: center;"><b>Focus:</b> Steady Hand Game</p> <p><b>Design:</b> Discuss what it is and what you need to make one. Design the game thinking about what will work well.</p> <p><b>Make:</b> Create the game focussing on the use of electricity to make it work.</p> <p><b>Evaluate:</b> Did it work? Was it good? What do you like about it? What would you change?</p>	<p style="text-align: center;"><b>Focus:</b> A Night Light</p> <p><b>Design:</b> Think about the user. What will it look like? What will it be made of? What is its purpose?</p> <p><b>Make:</b> Make the light focussing on the use of circuits.</p> <p><b>Evaluate:</b> Did it work? What would you change? Was it easy/difficult?</p>

## Villa Real School Design and Technology Big Picture

20 - 21	<p><b>Focus:</b> The Moving Picture Project</p> <p><b>Design:</b> Design your picture. What will you need to make it? What is its purpose?</p> <p><b>Make:</b> Create your picture. Ensure use of moving parts and electrical elements.</p> <p><b>Evaluate:</b> Did it work? Was it difficult/easy to make? What would you change?</p>	<p><b>Focus:</b> A Healthy Snack</p> <p><b>Design:</b> Think about what you could make for a healthy snack. Plan it and make a shopping list (go and buy ingredients if possible, if not budget for them) Think about its purpose (portable etc)</p> <p><b>Make:</b> Make your snack. Think about how it will taste and look.</p> <p><b>Evaluate:</b> Was it good? Did it taste nice? Was it healthy? How could it be improved?</p>	<p><b>Focus:</b> Pinball</p> <p><b>Design:</b> Look at pinball machines and what they look like. Find your favourites then design your own. What does it need to work?</p> <p><b>Make:</b> Make the pinball machine using triggers and mechanisms.</p> <p><b>Evaluate:</b> Did it work? Did you enjoy making it? What was good/bad about it? What would you change?</p>