

DT Key Knowledge Progression: Year 1 – Year 6

Structures:

	Start at Year A	Start at Year B
Year 1	<p>To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</p> <p>To understand that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses).</p> <p>To understand that axles are used in structures and mechanisms to make parts turn in a circle.</p> <p>To begin to understand that different structures are used for different purposes.</p> <p>To know that a structure is something that has been made and put together.</p> <p>Kapow: Constructing a Windmill</p>	<p>To know that shapes and structures with wide, flat bases or legs are the most stable.</p> <p>To understand that the shape of a structure affects its strength.</p> <p>To know that materials can be manipulated to improve strength and stiffness.</p> <p>To know that a structure is something which has been formed or made from parts.</p> <p>To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.</p> <p>To know that a 'strong' structure is one which does not break easily.</p> <p>To know that a 'stiff' structure or material is one which does not bend easily.</p> <p>Kapow: Build a Chair</p>
Year 2	<p>To know that shapes and structures with wide, flat bases or legs are the most stable.</p> <p>To understand that the shape of a structure affects its strength.</p> <p>To know that materials can be manipulated to improve strength and stiffness.</p> <p>To know that a structure is something which has been formed or made from parts.</p> <p>To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.</p> <p>To know that a 'strong' structure is one which does not break easily.</p> <p>To know that a 'stiff' structure or material is one which does not bend easily.</p> <p>Kapow: Build a Chair</p>	<p>To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</p> <p>To understand that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses).</p> <p>To understand that axles are used in structures and mechanisms to make parts turn in a circle.</p> <p>To begin to understand that different structures are used for different purposes.</p> <p>To know that a structure is something that has been made and put together.</p> <p>Kapow: Constructing a Windmill</p>
Year 3	<p>To understand that wide and flat based objects are more stable.</p> <p>To understand the importance of strength and stiffness in structures.</p> <p>To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose.</p> <p>To know that a façade is the front of a structure.</p> <p>To understand that a castle needed to be strong and stable to withstand enemy attack.</p> <p>Kapow: Construct a Castle</p>	<p>Possible Enrichment: Kapow: Pavillions</p>

Y e a r 4	Possible Enrichment: Kapow: Pavillions	<p>To understand that wide and flat based objects are more stable.</p> <p>To understand the importance of strength and stiffness in structures.</p> <p>To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose.</p> <p>To know that a façade is the front of a structure.</p> <p>To understand that a castle needed to be strong and stable to withstand enemy attack</p> <p>Kapow: Construct a Castle.</p>
Y e a r 5	Possible Enrichment: Kapow: Bridges	<p>To know that structures can be strengthened by manipulating materials and shapes.</p> <p>To understand what a ‘footprint plan’ is.</p> <p>To understand that in the real world, design can impact users in positive and negative ways.</p> <p>To know that a prototype is a cheap model to test a design idea.</p> <p>Kapow: Playgrounds</p>
Y e a r 6	<p>To know that structures can be strengthened by manipulating materials and shapes.</p> <p>To understand what a ‘footprint plan’ is.</p> <p>To understand that in the real world, design can impact users in positive and negative ways.</p> <p>To know that a prototype is a cheap model to test a design idea.</p> <p>Kapow: Playgrounds</p>	Possible Enrichment: Kapow: Bridges

TEXTILES:

	Start at Year A	Start at Year B
Y e a r 1	<p>To know that sewing is a method of joining fabric.</p> <p>To know that different stitches can be used when sewing.</p> <p>To understand the importance of tying a knot after sewing the final stitch.</p> <p>To know that a thimble can be used to protect my fingers when sewing.</p> <p>Kapow: Pouches</p>	<p>To know that ‘joining technique’ means connecting two pieces of material together.</p> <p>To know that there are various temporary methods of joining fabric by using staples, glue or pins.</p> <p>To understand that different techniques for joining materials can be used for different purposes.</p> <p>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</p> <p>To know that drawing a design idea is useful to see how an idea will look.</p> <p>Kapow: Puppets</p>

Y e a r 2	<p>To know that 'joining technique' means connecting two pieces of material together.</p> <p>To know that there are various temporary methods of joining fabric by using staples, glue or pins.</p> <p>To understand that different techniques for joining materials can be used for different purposes.</p> <p>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</p> <p>To know that drawing a design idea is useful to see how an idea will look.</p> <p>Kapow: Puppets</p>	<p>To know that sewing is a method of joining fabric.</p> <p>To know that different stitches can be used when sewing.</p> <p>To understand the importance of tying a knot after sewing the final stitch.</p> <p>To know that a thimble can be used to protect my fingers when sewing.</p> <p>Kapow: Pouches</p>
Y e a r 3	<p>To know that a fastening is something that holds two pieces of material together.</p> <p>To know that different fastening types are useful for different purposes.</p> <p>To know that creating a mock-up (prototype) of their design is useful for checking ideas and proportions.</p> <p>Kapow: Fastenings</p>	Possible Enrichment: Kapow: Cushions/Collars
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Y e a r 5	<p>To understand that it is important to design clothing with the client/target customer in mind.</p> <p>To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric.</p> <p>To understand the importance of consistently sized stitches.</p> <p>Kapow: Waistcoats</p>	Possible Enrichment: Kapow: Stuffed Toys
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Cooking and Nutrition

	Start at Year A	Start at Year B
Year 1	<p>To know that 'diet' means the food and drink that a person or animal usually eats.</p> <p>To understand what makes a balanced diet.</p> <p>To know where to find the nutritional information on packaging.</p> <p>To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.</p> <p>To understand that I should eat a range of different foods from each food group, and roughly how much of each food group.</p> <p>To know that nutrients are substances in food that all living things need to make energy, grow and develop.</p> <p>To know that 'ingredients' means the items in a mixture or recipe.</p> <p>To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy.</p> <p>To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.</p> <p>Kapow: A Balanced Diet</p>	<p>Possible Enrichment: Kapow: Fruit and Vegetables</p>
Year 2	<p>Possible Enrichment: Kapow: Fruit and Vegetables</p>	<p>To know that 'diet' means the food and drink that a person or animal usually eats.</p> <p>To understand what makes a balanced diet.</p> <p>To know where to find the nutritional information on packaging.</p> <p>To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.</p> <p>To understand that I should eat a range of different foods from each food group, and roughly how much of each food group.</p> <p>To know that nutrients are substances in food that all living things need to make energy, grow and develop.</p> <p>To know that 'ingredients' means the items in a mixture or recipe.</p> <p>To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy.</p> <p>To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.</p> <p>Kapow: A Balanced Diet</p>

<p>Y e a r 3</p>	<p>To know that not all fruits and vegetables can be grown in the UK. To know that climate affects food growth. To know that vegetables and fruit grow in certain seasons. To know that cooking instructions are known as a 'recipe'. To know that imported food is food that has been brought into the country. Kapow: Eating Seasonally</p>	<p>Possible Enrichment: Kapow: Adapting a Recipe.</p>
<p>Y e a r 4</p>	<p>Possible Enrichment: Kapow: Adapting a Recipe.</p>	<p>To know that not all fruits and vegetables can be grown in the UK. To know that climate affects food growth. To know that vegetables and fruit grow in certain seasons. To know that cooking instructions are known as a 'recipe'. To know that imported food is food that has been brought into the country. Kapow: Eating Seasonally</p>
<p>Y e a r 5</p>	<p>To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by substituting ingredients. To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. Kapow: What Could Be Healthier</p>	<p>Possible Enrichment: Kapow: Come Dine With Me</p>

Year 6	Possible Enrichment: Kapow: Come Dine With Me	<p>To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues.</p> <p>To know that I can adapt a recipe to make it healthier by substituting ingredients.</p> <p>To know that I can use a nutritional calculator to see how healthy a food option is.</p> <p>To understand that ‘cross-contamination’ means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.</p> <p>Kapow: What Could Be Healthier</p>
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Mechanisms and Mechanical Systems

	Start at Year A	Start at Year B
Year 1	Possible Enrichment: Kapow: Wheels and Axles	<p>To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.</p> <p>To know that there is always an input and an output in a mechanism.</p> <p>To know that an input is the energy that is used to start something working.</p> <p>To know that an output is the movement that happens as a result of the input.</p> <p>To know that a lever is something that turns on a pivot.</p> <p>To know that a linkage mechanism is made up of a series of levers.</p> <p>Kapow: Make a Moving Monster</p>
Year 2	<p>To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.</p> <p>To know that there is always an input and an output in a mechanism.</p> <p>To know that an input is the energy that is used to start something working.</p> <p>To know that an output is the movement that happens as a result of the input.</p> <p>To know that a lever is something that turns on a pivot.</p> <p>To know that a linkage mechanism is made up of a series of levers.</p> <p>Kapow: Make a Moving Monster</p>	Possible Enrichment: Kapow: Wheels and Axles

Y e a r 3	Possible Enrichment: Kapow: Pneumatic Toys	<p>To understand that all moving things have kinetic energy.</p> <p>To understand that kinetic energy is the energy that something (object/person) has by being in motion.</p> <p>To know that air resistance is the level of drag on an object as it is forced through the air.</p> <p>To understand that the shape of a moving object will affect how it moves due to air resistance.</p> <p>Kapow: Make a Slingshot Car</p>
Y e a r 4	<p>To understand that all moving things have kinetic energy.</p> <p>To understand that kinetic energy is the energy that something (object/person) has by being in motion.</p> <p>To know that air resistance is the level of drag on an object as it is forced through the air.</p> <p>To understand that the shape of a moving object will affect how it moves due to air resistance.</p> <p>Kapow: Make a Slingshot Car</p>	Possible Enrichment: Kapow: Pneumatic Toy
Y e a r 5	Possible Enrichment: Kapow: Automata Toys	<p>To know that mechanisms control movement.</p> <p>To understand that mechanisms can be used to change one kind of motion into another.</p> <p>To understand how to use sliders, pivots and folds to create paper-based mechanisms.</p> <p>To know that a design brief is a description of what I am going to design and make.</p> <p>To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.</p> <p>Kapow: Make a Pop Up Book</p>
Y e a r 6	<p>To know that mechanisms control movement.</p> <p>To understand that mechanisms can be used to change one kind of motion into another.</p> <p>To understand how to use sliders, pivots and folds to create paper-based mechanisms.</p> <p>To know that a design brief is a description of what I am going to design and make.</p> <p>To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.</p> <p>Kapow: Make a Pop Up Book</p>	Possible Enrichment: Kapow: Automata Toys

Digital World

	Start at Year A	Start at Year B
Year 1	N/A	N/A
Year 2	N/A	N/A
Year 3	Possible Enrichment: Kapow: Mindful Moments Timer	To understand that in programming a 'loop' is code that repeats something again and again until stopped. To know that a Micro:bit is a pocket-sized, codeable computer. Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm. Kapow: Electronic Charms
Year 4	To understand that in programming a 'loop' is code that repeats something again and again until stopped. To know that a Micro:bit is a pocket-sized, codeable computer. Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm. Kapow: Electronic Charms	Possible Enrichment: Kapow: Mindful Moments Timer
Year 5	To know that accelerometers can detect movement. To understand that sensors can be useful in products as they mean the product can function without human input. To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. To know that 'multifunctional' means an object or product has more than one function. To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing. Kapow: Navigating the World	Possible Enrichment: Kapow: Monitoring Devices

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Electrical Systems

	Start at Year A	Start at Year B
Y e a r 1	N/A	N/A
Y e a r 2	N/A	N/A
Y e a r 3	Possible Enrichment: Kapow: Electric Poster	<p>To understand that electrical conductors are materials which electricity can pass through.</p> <p>To understand that electrical insulators are materials which electricity cannot pass through.</p> <p>To know that a battery contains stored electricity that can be used to power products.</p> <p>To know that an electrical circuit must be complete for electricity to flow.</p> <p>To know that a switch can be used to complete and break an electrical circuit.</p> <p>Kapow: Torches</p>

<p>Y e a r 4</p>	<p>To understand that electrical conductors are materials which electricity can pass through. To understand that electrical insulators are materials which electricity cannot pass through. To know that a battery contains stored electricity that can be used to power products. To know that an electrical circuit must be complete for electricity to flow. To know that a switch can be used to complete and break an electrical circuit. Kapow: Torches</p>	<p>Possible Enrichment: Kapow: Electric Poster</p>
<p>Y e a r 5</p>	<p>Possible Enrichment: Kapow: Doodlers</p>	<p>To know that 'form' means the shape and appearance of an object. To know the difference between 'form' and 'function'. To understand that 'fit for purpose' means that a product works how it should and is easy to use. To know that 'form over purpose' means that a product looks good but does not work very well. To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. To understand the diagram perspectives 'top view', 'side view' and 'back'. Kapow: Steady Hand Game</p>
<p>Y e a r 6</p>	<p>To know that 'form' means the shape and appearance of an object. To know the difference between 'form' and 'function'. To understand that 'fit for purpose' means that a product works how it should and is easy to use. To know that 'form over purpose' means that a product looks good but does not work very well. To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. To understand the diagram perspectives 'top view', 'side view' and 'back'. Kapow: Steady Hand Game</p>	<p>Possible Enrichment: Kapow: Doodlers</p>