Curriculum Progression in Design and Technology

National Curriculum Focus

Purpose of Study	Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation
Aims	Pupils should be taught to: • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world • 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 • Critique, evaluate and test their ideas and products and the work of others • Understand and apply the principles of nutrition and learn how to cook.

Key Stage One

Design and Make	Cooking And Nutrition	Cultural Capital
Pupils should be taught: • **Design**: design purposeful, functional, appealing products for themselves and other users based on design criteria, generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • **Make:** select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics • **Evaluate:** explore and evaluate a range of existing products, evaluate their ideas and products against design criteria • **Technical knowledge:** build structures, exploring how they can be made stronger, stiffer and more stable, explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	Pupils should be taught: • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from	**Key Stage One** Healthy Eating Workshop STEM Day Friday 12th April – whole school

Key Stage Two

Pupils should be taught: • **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, generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • **Make:** select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately, 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 • **Evaluate:** 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 • **Technical knowledge:** apply their understanding of how to strengthen, stiffen and reinforce more complex structures, understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages], understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors], apply their understanding of computing to program, monitor and control their products.	Pupils should be taught: • Understand and apply the principles of a healthy and varied diet • Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.	**Lower Key Stage Two** Beginner STEMbotics workshop: Lego robots Think Tank STEM Day Friday 12th April – whole school **Upper Key Stage Two** Beginner STEMbotics workshop: building and coding drones STEM Day Friday 12th April – whole school

Links to EYFS				
The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe				
Design and Technology				
0-3 Years (Daisies Class)	**3 – 4 Years (Daffodils Class)**	**Reception Children (Sunflowers Class)**	**ELG**	**COEL Links**
• I can build tall towers and balance materials. • I can develop my own ideas and build using a variety of materials. • I can make models with blocks and construction kits. • I can talk about what I have made. • I can use my imagination during play and make simple models to support this. • I can use a variety of construction materials. • I am starting to develop my independence and understanding of healthy and unhealthy food.	• I can make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with small buildings and a park · • I can make enclosures and spaces when constructing. • I can talk about what I have made and how I have made it. • I can explore different materials freely, in order to develop ideas about how to use them and what to make • I can develop my own ideas and then decide which materials to use to express them • I can make healthy choices about food, drink, activity and tooth brushing	• I can talk about images and objects to support my design ideas • I can verbally plan and material choices. • I can describe how I made my construction and what I like about it. • I can return to and build on my previous learning, refining ideas and developing their ability to represent them. • I can develop a junk model. • I can check my model matches my plan. • I can describe my junk model and how I intent to put it together. • I can join different materials together in a variety of ways (Temporary or permanent) • I can think of some ways to improve my creations. • I can talk about what I have created, how I have made it and why and identify likes and dislikes. • I can think about how my construction could be improved • I can talk about what I can see in artists' work. • To be able to discuss the importance of healthy and unhealthy food	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used.	• Showing a curiosity about objects, events and people • Finding ways to solve problems • Making links and noticing patterns in their experience • Making predictions • Developing ideas of grouping, sequences cause and effect

		Streethay Primary School Progression of Skills in Structures					
		Year 1 Constructing a windmill	**Year 2** Baby bear's chair	**Year 3**	**Year 4** Pavilions	**Year 5**	**Year 6** Playgrounds
Skills	Design	• Learning the importance of a clear design criteria • Including individual preferences and requirements in a design.	• Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects.		Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight.		• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
	Make	Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure.	• Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper.		• Creating a range of different shaped frame structures. • Making a variety of free standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and cladding. • Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials		• Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures . • Using a range of materials to reinforce and add decoration to structures.
	Evaluate	• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements	• Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure.		•Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.		• Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure.
Knowledge	Technical Knowledge	• To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together	• To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.		• To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.		• To know that structures can be strengthened by manipulating materials and shapes.
	Additional Knowledge	• To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure.	• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.		• To know that a pavilion is a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience means the person or group of people a product is designed for . • To know that architects consider light, shadow and patterns when designing.		• To understand what a 'footprint plan' is. • To understand that in the real world, design , can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea.
Key Vocabulary		Client, design, evaluation, net, stable, strong, test, weak, windmill	Function, man-made, mould, natural, stable, stiff, strong, structure, test, weak		Aesthetic, cladding, design criteria, evaluation. Frame structure, function, inspiration, pavilion, reinforce, stable, structure, target audience, target customer, texture, theme		Adapt, apparatus, bench hook, cladding, coping saw, design, dowel, evaluation, feedback, idea, jelutong, landscape, mark out, modify, natural materials. Plan view, playground, prototype, reinforce, sketch, strong structure, tenon saw, texture, user, vice, weak.

Streethay Primary School
Progression of Skills in Mechanisms and mechanical systems

		Year 1	Year 2 Moving Monsters	Year 3 Pneumatic toys	Year 4	Year 5 Pop-up books	Year 6
Skills	Design		Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in accordance with a design criteria.	• Designing a toy which uses a pneumatic system. • Developing design criteria from a design brief. • Generating ideas using thumbnail sketches and exploded diagrams. • Learning that different types of drawings are used in design to explain ideas clearly.		• Designing a pop-up book which uses a mixture of structures and mechanisms. • Naming each mechanism, input and output accurately . • Storyboarding ideas for a book.	
	Make		• Making linkages using card for levers and split pins for pivots. • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. • Cutting and assembling components neatly.	• Creating a pneumatic system to create a desired motion. • Building secure housing for a pneumatic system. • Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. • Selecting materials due to their functional and aesthetic characteristics. • Manipulating materials to create different effects by cutting, creasing, folding and weaving.		• Following a design brief to make a pop up book, neatly and with focus on accuracy. • Making mechanisms and/or structures using sliders, pivots and folds to produce movement. • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.	
	Evaluate		• Evaluating own designs against design criteria. • Using peer feedback to modify a final design.	• Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.		• Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.	
Knowledge	Technical Knowledge		To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers.	• To understand how pneumatic systems work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air.		• To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms.	
	Additional Knowledge		• To know some real-life objects that contain mechanisms.	• To understand how sketches, drawings and diagrams can be used to communicate design ideas. • To know that exploded-diagrams are used to show how different parts of a product fit together. • To know that thumbnail sketches are small drawings to get ideas down on paper quickly		• To know that a design brief is a description of what I am going to design and make. • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	
Key Vocabulary			Evaluation, input, lever, linear motion, linkage, mechanical, mechanism, motion, oscillating motion, output, pivot, reciprocating motion, rotary motion, survey	Exploded diagram, function, input, level, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch		Aesthetic, computer-aided design (CAD), caption, design, design brief, design criteria, exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template	

Streethay Primary School Progression of Skills in Textiles							
		Year 1 Puppets	**Year 2**	**Year 3**	**Year 4** Seasonal Stockings	**Year 5**	**Year 6** Waistcoats
Skills	Design	• Using a template to create a design for a puppet.			• Designing and making a template from an existing cushion and applying individual design criteria.		• Designing a waistcoat in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions.
	Make	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing the steps taken during construction.			• Following design criteria to create a seasonal stocking. • Selecting and cutting fabrics with ease using fabric scissors. • Threading needles with greater independence. • Tying knots with greater independence. • Sewing cross stitch, running stitch, back stitch or overstitch to join fabric. • Decorating fabric using appliqué. • Completing design ideas and sewing the edges		• Using a template when cutting fabric to ensure they achieve the correct shape. • Using pins effectively to secure a template to fabric without creases or bulges. • Marking and cutting fabric accurately, in accordance with their design. • Sewing a variety of stitches using a stitch, making small, neat stitches and following the edge with much greater independence. . • Tying strong knots. • Decorating a waistcoat, attaching features (such as appliqué) using thread. • Finishing the waistcoat with a secure fastening (such as buttons). • Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches.
	Evaluate	• Reflecting on a finished product, explaining likes and dislikes.			• Evaluating an end product and thinking of other ways in which to create similar items.		• Reflecting on their work continually throughout the design, make and evaluate process.
Knowledge	Technical Knowledge	• To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples. glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look			•To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. •To know that when two edges of fabric have been joined together it is called a seam. •To know that it is important to leave space on the fabric for the seam. •To understand that some products are turned inside out after sewing so the stitching is hidden.		• To understand that it is important to design clothing with the client/ target customer in mind. • To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric . • To understand the importance of consistently sized stitches
Key Vocabulary		Decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template			Aesthetic, back-stitch, function, assemble. Design criteria, evaluation, fabric, felt, function, mock-up, over-stitch, running stitch, target audience, target customer, template		Accurate, adapt, annotate, back stitch, design, design criteria, detail, fabric, embellishments, fastening, knot, over-stitch, properties, running-stitch, seam, sew, shape, target audience, target customer, template, thread, unique, waistcoat

Streethay Primary School
Progression of Skills in Cooking and Nutrition

		Year 1 Smoothies	Year 2	Year 3 Eating Seasonally	Year 4	Year 5 Developing a recipe	Year 6
Skills	Design	• Designing smoothie carton packaging by-hand or on ICT software.		• Designing a recipe for a savoury tart.		Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Writing an amended method for a recipe to incorporate the relevant changes to ingredients. • Designing appealing packaging to reflect a recipe Researching existing recipes to inform different choices.	
	Make	• Chopping fruit and vegetables safely to make a smoothie. • Juicing fruits safely to make a smoothie. .		• Following the instructions within a recipe. • Tasting seasonal ingredients. • Selecting seasonal ingredients. • Peeling ingredients safely. • Cutting safely with a vegetable knife.		• Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe.	
	Evaluate	• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. *Comparing their smoothie to others.		• Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart.		• Identifying the nutritional differences between different products and recipes • Identifying and describing healthy benefits of food groups.	
Knowledge	Technical Knowledge	• To know that a blender is a machine which mixes ingredients together into a smooth liquid. To know that a fruit has seeds. To know that fruits grow on trees or vines. To know that vegetables can either grow above or under ground. To know that vegetables is any edible part of a plant (for example roots or leaves).		• 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 which has been brought into the country. • To know that exported food is food which has been sent to another country.. • To know that eating seasonal foods can have a positive impact on the environment. • To know that similar coloured fruits and vegetables often have similar nutritional benefits. • To know that the appearance of food is as important as taste..		• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed. • To know that recipes can be adapted to suit nutritional needs and dietary requirements. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. • To know that coloured chopping boards can prevent cross-contamination. • To know that nutritional information is found on food packaging. • To know that food packaging serves many purposes.	
Key Vocabulary		Blend, blender, chopping board, compare, cut, design, evaluate, flavour, fork, fruit, healthy, ingredients, juice, juicer, leaf, plant, receipt, root, seed, select, smoothie, stem, table knife, taste, tree, vegetable, vine.		Climate, dry climate, exported, imported, Mediterranean climate, food miles, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate		Beef, cross-contamination, diet, ethical issues. Farm, healthy, ingredients, method, nutrients, packaging, reared, recipes, research, substitute, supermarket, vegan, vegetarian, welfare.	

Streethay Primary School
Progression of Skills in Electrical Systems (KS2 only)

		Year 3	Year 4 Torches	Year 5 Steady Hand Game	Year 6
Skills	Design		• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that clarifies the target user.	
	Make		• Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria.	• Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria. • Breaking down the construction process into steps so that others can make the product.	
	Evaluate		• Evaluating electrical products. • Testing and evaluating the success of a final product.	• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. • Peer evaluating a set of instructions to build a product.	
Knowledge	Technical Knowledge		• 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.	• To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function.	
	Additional Knowledge		• To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.	• To know that product analysis is critiquing the strengths and weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged.	
Key Vocabulary			Battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electricity, electronic item, function, insulator, series circuit, switch, test, torch, wire	Assemble, battery, battery pack, benefit, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, fine motor skills. Fir for purpose, form, function, gross motor skills. Insulator, LED, user.	

Streethay Primary School Progression of Skills in Digital World (KS2 only)					
		Year 3 Wearable Technology	**Year 4**	**Year 5**	**Year 6** Navigating the World
Skills	Design	• Problem solving by suggesting which features on a micro:bit might be useful and justifying my ideas. • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge. • Developing design ideas through annotated sketches to create a product concept. • Developing design criteria to respond to a design brief.			• Writing a design brief from information submitted by a client • Developing design criteria to fulfil the client's request • Considering and suggesting additional functions for my navigation tool • Developing a product idea through annotated sketches • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD
	Make	• Following a list of design requirements. • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.			• Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo) • Explaining material choices and why they were chosen as part of a product concept • Programming an N,E, S,W cardinal compass
	Evaluate	• Analysing and evaluating wearable technology. • Using feedback from peers to improve design.			• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Developing an awareness of sustainable design • Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the client's request and how it will benefit the customers • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept
Knowledge	Technical Knowledge	• 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. • To know that a simulator is able to replicate the functions of an existing piece of technology.			• 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
	Additional Knowledge	•To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result. • To understand what is meant by 'point of sale display.' • To know that CAD stands for 'Computer-aided design'. • To know what a focus group is by taking part in one.			• 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
Key Vocabulary		Analogue, analyse, annotate, badge, computer-aided design, (CAD), control, design criteria, develop, digital, digital revolution. Digital world, display, electronic, electronic product.			Alert, ambient, Boolean, consumables, decompose, development, device, duplicate, durable, electronic, inventor, lightweight, man-made, manipulate, manoeuvre, microplastics, model, monitor, monitoring device, moulded, plastics, plastic pollution, programming content, programming loop, reformed, replica, research, sensor, strong, sustainability, thermometer, thermoscope, value, versatile, water-resistant, workplane.