

Cuddington Primary School

Design and Technology Essential Learning, Assessment and Skills Progression



CUDDINGTON
Primary School



Respect Collaborate Aspire

Creating Success Together

Design & Technology Essential Learning and Assessment Questions

Our Design and Technology curriculum is structured around key disciplinary concepts, including **designing, making, evaluating, technical knowledge, and using materials and components**. These concepts underpin learning and are revisited from Reception to Year 6, enabling pupils to build practical skills, creativity, and technical understanding over time. Through this progression, pupils learn to design purposeful products for specific users and purposes, applying their understanding of materials, mechanisms, structures, and systems. Practical problem-solving is central to the curriculum, with pupils developing ideas, testing prototypes, and refining their work. By revisiting these concepts and building disciplinary skills, pupils think increasingly like designers and engineers - able to generate ideas, make informed decisions, evaluate outcomes, and create functional and appealing products.

Reception		
Essential Learning		
Mechanisms Let's look at (toys)	Food Technology Preparing/tasting (fruit kebabs)	Textiles Fabrics (Methods of joining/weaving)
I can ... - explore a collection of toys by looking at a range of materials (fabric, metal, plastic, wood) and different mechanisms (wheels, axles, levers, cams). - discuss why and who might use certain toys (baby, young child). - make a simple toy with joints that are fixed (glue, staple) and move (peg). - explore different methods of joining by using a variety of materials and basic tools (scissors, stapler). - say what I like about my mechanism.	I can ... - experience and discuss common fruit i.e. appearance, taste, texture, and smell using sensory language. - explain that food comes from plants and animals. - name utensils/equipment used for eating or cooking. - design an edible product through talk or drawings. - experience cutting soft fruit using appropriate utensils (knife) and the safe fork-cutting technique. - say what was easy or difficult about making my final product.	I can ... - explore a wide range of fabrics and textiles by feeling. - explain where textiles come from (sheep's wool, oil, cotton plants). design a picnic blanket through talk or drawings and choose my own fabrics. - experience different methods of joining like gluing pieces of fabric together, stapling fabric with plenty of overlap, paper/card weaving, notched weaving cards or plastic mesh. - experience simple cutting, shaping, and joining skills using scissors, glue, paper fasteners, staples, Sellotape, or masking tape. - test the final product and explain how I made it.
Assessment Questions		

• What is this toy made from? • What are toys used for? • Who plays with them? • Is the toy fixed, or does it move? • What materials did you use to make your toy? • What do you like about your toy?	• What is your favourite fruit? • Where does food come from? • What utensils do you use to eat food with or cook? • Which fruit did you use for your kebab? • How can you safely cut fruit? • What was easy/hard about making the kebab?	• Which of these materials are made from fabric or textiles? • Where do textiles come from? • Can you tell me what you have designed? • How did you join the pieces of fabric together? • Which tools did you use? • Do you like your design? Why?
Essential Vocabulary		
Tier 1: toy, move, join, cut, stick	Tier 1: fruit, eat, cut, knife, plant, animal, soft	Tier 1: cut, stick, soft, plants, glue, tape, blanket, wool, cotton
Tier 2: scissors, stapler, material	Tier 2: Expanded sensory language (crunchy, juicy, squishy)	Tier 2: fabric, join, staples, scissors
Tier 3: fixed, mechanism	Tier 3: utensil, kebab	Tier 3: textile, weaving

Year One		
Essential Learning		
Mechanisms Sliders and levers	Structures Freestanding structures	Food Technology Preparing healthy fruit salad

I can ... - name everyday products that use simple sliders and levers. - explain that a mechanism moves (push or pull). - communicate ideas through drawings or mock-ups with card and paper, based on simple design criteria. - select and use tools to cut, shape, and join paper and card, using slots, bridges (guides), and paper fasteners. - evaluate my product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.	I can ... - name existing freestanding structures in the school or local environment. - explain how to make freestanding structures stronger, stiffer, and more stable so the base isn't weak. - communicate and develop ideas through talking, mock-ups or drawings, based on simple design criteria. - select and use tools, skills, and techniques to build structures, explaining my choices (folding/shaping). - evaluate my product by discussing how well it works in relation to the purpose, the user and whether it meets the design criteria.	I can ... taste and evaluate a range of fruit to determine the intended user's preferences (appearance, smell, texture). - explain where a range of fruits come from e.g. farmed or grown at home and its parts (flesh, skin, seed, pip). - design an edible product for a particular user based on simple design criteria through talk or drawings. - use simple utensils and equipment to e.g. cut, squeeze and chop safely. - evaluate ideas and finished products against design criteria, including intended user and purpose.
Assessment Questions		
- Which products use sliders/levers? - What does a mechanism do? - What did you design? - How did you join your slider/lever? - How well does your product work?	- Can you name a freestanding structure in our school? - How can we make structures stronger, stiffer, and more stable? - Which design criteria have you used? - Which tools and skills did you use? - What is the purpose of your structure?	- Which fruit did you enjoy tasting? - Where does fruit come from? - Which design criteria did you use in your design? - Which utensils did you use, and what do they do? - Who did you create it for?
Essential Vocabulary		
design, make, evaluate something (what), for someone (user), for some purpose	design, make, evaluate something (what), for someone (user), for some purpose	design, make, evaluate something (what), for someone (user), for some purpose
Tier 1: move, push, pull, cut	Tier 1: cut, fold	Tier 1: fruit, cut, taste
Tier 2: join, shape	Tier 2: join, strong, weak, stable, shape	Tier 2: healthy, smell, texture, squeeze, chop
Tier 3: mechanism, lever, slider, slot, bridge (Guide), paper fastener	Tier 3: freestanding structure, stiff, base	Tier 3: utensil, flesh, skin, seed, pip

Significant Individuals

Ingvar Kamprad (IKEA founder)	Frank Lloyd Wright (Architect)	Mary Berry (Chef and food writer)
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Year Two

Essential Learning

Mechanisms Wheels and axles	Food Technology Preparing a vegetable salad	Textiles Templates and joining techniques
I can ... - name and evaluate a range of vehicles with wheels and axles. - explain the difference between fixed axles on a chassis, and freely moving axles. - generate my initial ideas and simple design criteria through talking, drawings or mock-ups. - use a range of tools and materials (dowel) to perform practical tasks such as cutting and joining to allow movement and finishing. - use different finishing techniques e.g. painting to make the product appealing to the user. - evaluate my ideas throughout and my product against the original criteria (appealing).	I can ... - taste and evaluate a range of vegetables to determine the intended user's preferences. - explain and use basic principles of a healthy and balanced diet to prepare dishes, including how vegetables are a part of The Eatwell Guide. - design an edible product for a particular user based on simple design criteria through talk or drawings. - use simple utensils and equipment to prepare ingredients by peeling, slicing, grating, or chopping safely. - evaluate my ideas and finished product against design criteria, including intended user and purpose.	I can ... - name and evaluate a range of existing textile products relevant to the project. - explain how to join fabrics using different techniques and patterns e.g. running stitch, glue, over stitch or stapling. - design a functional and appealing product for a chosen user and purpose based on simple design criteria through talking, drawing, templates, or mock-ups. - use a range of tools and techniques to sew using seams, needle and thread as well as marking out, cutting, joining, gluing and finishing. - use different finishing techniques e.g. stitching, sequins, buttons, or ribbons. - evaluate my ideas throughout and my final product against the design criteria.
Assessment Questions		
- Which products use wheels and axles? - What is a fixed/freely moving axle? - Can you explain your vehicle design? - How did you cut and join each part?	- What is your favourite vegetable? - Which ingredients did you use in your salad? Why? - What are your design criteria?	- Which products use textiles? - How did you join your fabrics? - Who is the user of your product? - Which finishing techniques did you use?

- How did you finish your product? - Does your product look like your original design?	- Which utensils did you use? - Why did you create this salad?	What did you find difficult?
Essential Vocabulary		
research, design, make, evaluate something (what), for someone (user), for some purpose, design criteria, product	research, design, make, evaluate something (what), for someone (user), for some purpose, design criteria, product	research, design, make, evaluate something (what), for someone (user), for some purpose, design criteria, product
Tier 1: wheel, vehicle, cut, move, paint	Tier 1: vegetable, salad, skin, seed, taste	Tier 1: tools, cut, join, glue
Tier 2: appealing, join, mechanism	Tier 2: healthy, utensil, chop, ingredients, peeling, slicing	Tier 2: fabric, pattern, template, finishing
Tier 3: chassis, axle, fixed/freely moving axle, dowel	Tier 3: grate, prepare, balanced diet	Tier 3: textile, stitch, sew, seam, needle, thread
Significant Individuals		
Walter Owen Bentley (Engineer)	Zuhair Hassan (Zuu) (Chef)	Coco Chanel (Dress designer)

Year Three		
Essential Learning		
Structures Shell structures - computer-aided design	Structures Shell structures - Biscuit gift boxes	Mechanisms Pneumatic mascots
I can ... - name and investigate a range of shell structures. - use my knowledge of nets of cubes and cuboids or more complex 3D shapes. - generate realistic ideas through discussion, the analysis of existing shell structures and the use of Tinkercad online software (computer-aided design) to design and communicate ideas. - use computer-generated finishing techniques (shape, colour, text, lettering, layout, font, size) suitable for the product.	I can ... - evaluate the materials, components and techniques that have been used to create existing shell structures. - explain how to construct strong, stiff shell structures using tabs, corrugated card or laminating. - use CAD-generated ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the purpose of the product through prototypes to model and communicate ideas. - select and use appropriate tools to build, measure, mark out, cut, score, shape and assemble/adhere with some accuracy. test and evaluate my product against the design criteria and the intended user and purpose.	I can ... - analyse videos and products with pneumatic mechanisms. - explain how a simple pneumatic system works using compressed air and pressure. - design a mascot with at least one moving part controlled by a pneumatic system and generate my own design criteria through discussion, focusing on the user through annotated sketches (input and output) or prototypes to develop, model, and communicate ideas. - use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes, plungers or balloons. - use finishing techniques suitable for the product they are creating. - evaluate my product and ideas against criteria and user needs.
Assessment Questions		
- Which shell structures did you research? - What is a net of a 3D shape? - How did you design your ideas in Tinkercad? - Which finishing techniques did you apply?	- Which materials did you use to assemble your shell structure? - How did you strengthen it? - Which design criteria must your product have to be successful? - Which tools and new techniques did you learn?	- Which objects use a pneumatic mechanism? - How does a pneumatic system work? - Can you explain how you have designed your mechanism? - Which components did you use to make your mascot move?

	Did your finished product do what it was intended for?	What are the positives and negatives of your product?
Essential Vocabulary		
research, design, make, evaluate something (what), for someone (user), for some purpose, design criteria, product	research, design, make, evaluate something (what), for someone (user), for some purpose, design criteria, product	research, design, make, evaluate something (what), for someone (user), for some purpose, design criteria, product
Tier 1: shape, size, colour, text	Tier 1: cut, shape, build	Tier 1: push, move, balloon, join
Tier 2: font, layout	Tier 2: assembly, measure, test	Tier 2: input, output, component, pressure
Tier 3: CAD, shell structure, tree-dimensional, net	Tier 3: scoring, tabs, corrugated, laminating, adhesive, prototype	Tier 3: pneumatic, tubing, syringe, plunger, compressed
Significant Individuals		
Ivan Sutherland (Computer scientist)	Gail Anderson (Graphic Designer)	Edwin Clark (Civil Engineer)

Year Four

Essential Learning

Mechanical Systems Levers and linkages	Electrical Systems Simple circuits and switches (including programming and control)	Food Technology Healthy and varied diet – Healthy sandwiches
I can ... - explore products with lever and linkage mechanisms, such as flaps, sliders, and levers. - explain the difference between fixed and loose pivots. - explain which movements my lever / linkage mechanism makes - linear, rotary, reciprocating, oscillating. - generate realistic ideas and my own design criteria through discussion, annotated sketches, or prototypes to develop, model and communicate ideas, focusing on the needs of the user. - select and use appropriate tools with some accuracy to cut, shape and join paper and card. - select from and use finishing techniques suitable for the product. - evaluate my product and ideas against criteria and user needs.	I can ... - investigate and analyse a range of existing battery-powered devices that produce light. - develop and communicate realistic ideas with design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups, through discussion and annotated sketches, cross sectional or exploded diagrams. - select and use tools and equipment to cut, shape, join and finish with some accuracy. - use electrical systems in my product, such as simple series circuits incorporating switches, bulbs, and wires. - apply my understanding of computing to program and control (input/output) my products. - evaluate my ideas and products against the design criteria and identify the strengths and areas for improvement in my work.	I can ... - carry out a sensory evaluation of a variety of ingredients and products by recording my findings in tables or simple graphs. - explain a healthy and balanced diet through the Eatwell Guide and if a range of fresh and processed foods are grown, reared, or caught. - name some ways to prepare ingredients safely and hygienically. - generate and clarify my ideas through discussion with peers and adults, annotated sketches to develop and communicate ideas and design criteria, including appearance, taste, texture, and aroma for an appealing product for a particular user and purpose. - plan the main stages of a recipe, listing ingredients, utensils, and equipment. - use appropriate equipment and utensils to prepare and combine food ingredients. - evaluate the process and final product with reference to the design criteria and the views of others.
Assessment Questions		
- Which products use lever and linkage mechanisms? - What is the difference between a fixed and loose pivot?	- Can you name some battery-powered products? - What is the purpose, and who is the user of your electrical product?	How did you record your sensory evaluations of a variety of ingredients and products?

- Which movement does your lever / linkage mechanism make? - How did you design your prototype? - Which tools and finishing techniques did you use? - Does your product fit the user's need?	- Can you explain how the electrical systems in your product work and its components? - How did you use computing to program and control your products? - What are the strengths and weaknesses of your product?	- Why is it important to eat a healthy and varied diet, and how does food get onto our plates? - How can we prepare food safely and hygienically? - Can you explain the main stages of your recipe? - Which equipment and utensils to prepare and combine ingredients did you use? - What did you and your friend think about the final dish?
Essential Vocabulary		
research, design, make, evaluate user, purpose, design criteria, product	research, design, make, evaluate user, purpose, design criteria, product	research, design, make, evaluate user, purpose, design criteria, product
Tier 1: cut, shape, join, move	Tier 1: battery, light, cut, join	Tier 1: food, cut, taste
Tier 2: prototype	Tier 2: switch, bulb, control, produce	Tier 2: healthy, balanced diet, utensil, recipe, hygiene, aroma, appearance, texture
Tier 3: mechanism, lever, slider, linkage, slot, guide/bridge, fixed pivot, loose pivot, linear, rotary, reciprocating, oscillating	Tier 3: series circuit, input/output device, electrical system, program	Tier 3: grown, reared, caught, processed food, ingredients
Significant Individuals		
Mary Anderson (Inventor)	Thomas Edison (Inventor)	Joe Wicks (Nutrition & fitness coach)

Year Five

Essential Learning

Structures Frame structures	Food Technology Celebrating culture and seasonality - pizza	Electrical Systems More complex switches and circuits (including programming, monitoring and control)
I can ... - investigate and evaluate a range of existing frame structures. - understand how to strengthen, stiffen, and reinforce the stability of 3D frameworks (triangulation, tension, vertical, diagonal dowels). - generate, develop, and model innovative ideas through discussion, prototypes, or annotated sketches with a simple design specification to guide the development of ideas and products. - formulate a clear step-by-step plan of instructions and list the resources to be used. - competently select from and use appropriate tools to accurately measure, mark out, cut, shape, and join construction materials to make frameworks. - use finishing and decorative techniques suitable for the product. - critically test and evaluate products against my design specification, intended user and purpose, identifying strengths and areas for development.	I can ... - carry out sensory evaluations of a range of products and ingredients by recording them using tables, graphs, or charts such as star diagrams (appeal, texture). - understand seasonality and the source of different food products. - explain that some people have food allergies and intolerances. - generate innovative ideas through research and discussion with peers/adults and annotated sketches to develop a design brief and criteria for a purpose and specific user. - write a step-by-step recipe, including a list of ingredients, equipment, and utensils (crust, knead, bake, dough, slice). - select and use appropriate utensils and equipment, including heat sources, accurately to measure and combine ingredients hygienically. - decorate and present the food product appropriately for the intended user and purpose (toppings). - evaluate the final product with reference to the design brief and design specification, considering the views of others when identifying improvements.	I can ... - use research to develop a design specification for a functional product that responds automatically (input/output) to changes in the environment. - generate and develop innovative ideas through discussion, annotated sketches or pictorial representations of electrical circuits or circuit diagrams for a specific purpose and user. - formulate a step-by-step plan to guide making, listing tools, equipment, materials and components (wires, circuit, switch, battery, sensor). - competently select and accurately assemble materials and securely connect electrical components to produce a reliable, functional product. - create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. test the system to demonstrate its effectiveness for the intended user and purpose and continually evaluate and modify the working features of the product to match the initial design specification.

Assessment Questions

- Can you name some frame structures? - How can you reinforce a 3D framework? - Which instructions do you need to follow to build your structure? - Which new techniques or skills did you learn? - How did you finish and decorate your product? - What are the strengths and areas for development of your structure?	- What did the sensory evaluation of a range of products and ingredients show you? - What is seasonality, and what are the sources of different food products? - What is a food allergy/intolerance? - Which ingredients, equipment and utensils do you need to carry out your recipe? - How did you make the food product appealing to the intended user and purpose? - What does your friend think of your dish, and can it be improved?	- Can you give an example of a product that uses an electrical system? - What is its purpose, and who is the user? - Can you explain your step-by-step plan? - Which electrical components did you use? - How did you program your electrical product to work automatically? - What did you find easy or difficult?
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Essential Vocabulary

research, design, make, evaluate user, purpose, design criteria, product	research, design, make, evaluate user, purpose, design criteria, product	research, design, make, evaluate user, purpose, design criteria, product
Tier 1: plan, decorate	Tier 1: recipe, appealing, bake, dough, topping	Tier 1: plan, test, wire
Tier 2: instructions, modelling, reinforce, stability	Tier 2: ingredients, utensils, seasonality, source, knead, slice, crust	Tier 2: circuit, switch, program, component, control, battery, connect
Tier 3: dowel, frame structure, triangulation, tension, vertical, diagonal	Tier 3: allergies, intolerances, texture, hygiene	Tier 3: sensor, input, output, modify

Significant Individuals

Antoni Gaudi (Architect)	Heston Blumenthal (Chef)	James Dyson (Inventor)
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Year Six

Essential Learning

Textiles Combining different fabric shapes - computer-aided design	Textiles Combining different fabric shapes	Mechanical Systems Pulleys or gears – Ferris wheels
I can ... - investigate and analyse textile products linked to the final product. - explain that a 3D textile product can be created from a combination of accurately made pattern pieces, fabric shapes and different fabrics. - generate innovative ideas to develop, model, and communicate ideas through talking, drawing, templates, mock-ups, or prototypes including using computer-aided design. - design purposeful, functional, appealing products, using CAD, for the intended user that are fit for purpose based on a simple design specification including fastenings and seam allowance.	I can ... - explain how fabrics can be strengthened, stiffened, and reinforced, for example by adding wadding or extra layers. - use my CAD design and prototype to create purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. - formulate step-by-step plans with detailed lists of equipment and fabrics, including pattern pieces, and, if appropriate, allocate tasks within a team. - select from and use a range of tools and equipment (needle, thread, pins, seam allowance) to make products that are accurately assembled and well finished using appliqué, embroidery or fastenings. - test products with the intended user in mind and critically evaluate the quality of the design, manufacture, functionality, and fitness for purpose, considering the views of others to improve my work.	I can ... - investigate famous manufacturing and engineering companies relevant to the project. - explain how a mechanical system using a gear or pulley can change rotation, speed up, slow down, or change the direction of movement using a driver and follower. - develop a simple design specification to guide my thinking and develop and communicate ideas through discussion, annotated drawings, exploded drawings or drawings from different views, including CAM designs. - formulate step-by-step plans with detailed lists of tools, equipment, and materials, including mesh, circuit components, and, if appropriate, allocate tasks within a team. - select from and use a range of tools and equipment to make products that are accurately assembled and well finished, using a motor, motor spindle, drive belt, gear, or pulley. - test products with the intended user in mind and critically evaluate the quality of the design, manufacture, functionality, and output, considering the input from a switch and the views of others to improve my work.
Assessment Questions		

• Can you name some textile products? • How can a 3D textile product be made? • Who is the user, and what is the purpose of your product? • How did you develop your design ideas using computer-aided design?	• How can fabrics be made stronger or stiffer? • What design criteria are you using? • Which tools and equipment did you use? • Was your product fit for its purpose? • Did you/others think you could improve it?	• Can you name a famous manufacturer or engineering company? • How can gears or pulleys be used to speed up, slow down or change the direction of movement? • Can you explain your step-by-step plan? • What do you think of the quality, manufacture, and functionality of your work?
Essential Vocabulary		
research, design, make, evaluate user, purpose, design criteria, product	research, design, make, evaluate user, purpose, design criteria, product	research, design, make, evaluate user, purpose, design criteria, product
Tier 1: fabric, draw, create	Tier 1: needle, thread, pins	Tier 1: motor, switch, input
Tier 2: prototype, pattern piece, fastening, seam allowance, template	Tier 2: seam, fastening, wadding, pattern piece, appliqué, embroider	Tier 2: gear, pulley, rotation, output, drive belt, driver, follower
Tier 3: CAD, 3D textile	Tier 3: prototype, reinforce, stiffen, seam allowance	Tier 3: mechanical system, CAM, manufacturing, engineering, mesh, circuit, motor spindle
Significant Individuals		
Patrick J. Hanratty (Computer scientist)	Richard Steiff (Designer)	George Washington Gale Ferris Jr (Engineer)

Assessment Approach

Cuddington assesses pupils through practical outcomes and discussion using enquiry-based questions. Staff use this progression grid to judge how well pupils are developing as designers, moving from exploring and describing in EYFS/KS1 to planning, refining, and evaluating complex products in KS2.

Expected Standard: Pupils can independently demonstrate the ‘can’ statements for their year group using taught skills, knowledge, and vocabulary.

Skill Area	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing	Can share ideas through talk or drawings	Can design simple products for a purpose	Can generate ideas using simple criteria	Can develop ideas using sketches and discussion	Can use annotated sketches and prototypes	Can create design specifications and plans	Can develop detailed, purposeful designs using CAD and modelling
Making	Can explore and join materials	Can cut, shape, and join materials	Can select tools and materials appropriately	Can build and assemble with accuracy	Can use a range of tools with control and precision	Can follow detailed plans to construct products	Can make high-quality products with accuracy and independence
Evaluating	Can talk about what they made	Can say what worked and what didn't	Can evaluate products against simple criteria	Can test and evaluate their work	Can evaluate against design criteria and user needs	Can critically evaluate and suggest improvements	Can evaluate and refine products considering purpose, user, and functionality
Technical Knowledge	Can explore how things work	Can understand basic mechanisms (push/pull)	Can explain simple structures and materials	Can understand mechanisms (e.g. pneumatics) and structures	Can understand electrical systems and movement	Can apply knowledge of structures, circuits, and materials	Can apply complex technical knowledge (gears, pulleys, CAD/CAM)
Using Materials & Components	Can explore different materials	Can use basic materials safely	Can choose appropriate materials	Can select materials for purpose	Can combine materials and components effectively	Can use materials considering strength and function	Can select and manipulate materials with precision and purpose
Planning & Process	Can follow simple instructions	Can plan simple steps	Can sequence steps with support	Can plan stages of making	Can plan recipes, builds, and processes	Can create step-by-step instructions independently	Can plan complex processes and manage making independently
Creativity & Problem Solving	Can explore and experiment	Can try ideas and solve simple problems	Can adapt ideas during making	Can improve ideas through testing	Can solve problems during making	Can innovate and adapt ideas independently	Can generate and refine innovative solutions to problems
Use of Vocabulary	Use simple words (cut, join)	Use basic D&T vocabulary	Use subject-specific vocabulary	Use technical vocabulary in context	Apply accurate technical terminology	Use analytical vocabulary (evaluate, improve)	Use precise technical and evaluative language confidently