

DESIGN & TECHNOLOGY LONG TERM PLAN – EYFS

IN THE EARLY YEARS FOUNDATION STAGE, DESIGN AND TECHNOLOGY PLAY A CRUCIAL ROLE IN THE LEARNING JOURNEY OF CHILDREN WITHIN THE 'UNDERSTANDING OF THE WORLD' SECTION OF THE FOUNDATION STAGE CURRICULUM. THIS AREA ALSO INCLUDES GEOGRAPHY, HISTORY, ICT, AND SCIENCE, AS WELL AS EXPRESSIVE ARTS AND DESIGN.

CHILDREN PARTICIPATE IN HANDS-ON LEARNING EXPERIENCES THROUGHOUT THEIR TIME WITH US, WHERE THEY WILL BE ENCOURAGED TO EXPLORE, OBSERVE, SOLVE PROBLEMS, THINK CRITICALLY, MAKE DECISIONS, AND EXPLAIN THE REASONING BEHIND THEIR DECISIONS. BELOW ARE SOME EXAMPLES OF THE TYPICAL LEARNING EXPERIENCES YOUR CHILD WILL HAVE TO PREPARE THEM FOR THEIR DESIGN AND TECHNOLOGY JOURNEY WITH US:

CONSTRUCTION: CHILDREN WILL LEARN TO CONSTRUCT WITH SPECIFIC PURPOSES IN MIND. SOME MAY USE SCISSORS, GLUE, STRING, AND A HOLE PUNCH TO CREATE VARIOUS PRODUCTS THAT ENHANCE THEIR PLAY.

STRUCTURES AND JOINTS: CHILDREN MAY BUILD VEHICLES, BUILDINGS, AND OTHER STRUCTURES USING A VARIETY OF LOOSE PARTS BASED ON WHAT THEY HAVE READ, SEEN OR LEARNED ABOUT.

EXPLORATION: CHILDREN WILL TAKE APART ITEMS TO GAIN INSIGHT INTO HOW EVERYDAY OBJECTS WORK. FOR INSTANCE, A CHILD MIGHT DISASSEMBLE A PEPPER GRINDER TO UNDERSTAND ITS ASSEMBLY AND THE MATERIALS USED IN ITS DIFFERENT PARTS.

USING TOOLS: THIS WILL HELP YOUR CHILD UNDERSTAND THE IMPORTANCE OF PLANNING AND ADAPTING INITIAL IDEAS TO IMPROVE THEM. FOR EXAMPLE, A CHILD MIGHT CHOOSE TO USE SCISSORS, A STAPLER, ELASTIC BANDS, AND GLUE TO ASSEMBLE PIECES TOGETHER TO CREATE A TOY VEHICLE. LATER ON, THEY MIGHT ADJUST THEIR INITIAL IDEA BY USING MASKING TAPE.

COOKING: SOME CHILDREN WILL TAKE TURNS STIRRING A CAKE MIXTURE AND WATCH WITH FASCINATION AS IT RISES DURING BAKING. THEY WILL PRACTICE STIRRING, MIXING, POURING, AND BLENDING INGREDIENTS DURING COOKING ACTIVITIES.

DISCUSSION: YOUR CHILD WILL HAVE OPPORTUNITIES TO DISCUSS THE REASONS BEHIND SAFE OR UNSAFE ACTIVITIES, SUCH AS HYGIENE, ELECTRICAL AWARENESS, AND THE APPROPRIATE USE OF SENSES WHEN TASTING DIFFERENT FLAVORINGS. THEY WILL ALSO BE ENCOURAGED TO DOCUMENT THEIR EXPERIENCES THROUGH ACTIVITIES LIKE DRAWING, WRITING, OR CREATING A MODEL OR TAPE.



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	AUTUMN 2	KEY LEARNING	SPRING 2	KEY LEARNING	SUMMER 2	KEY LEARNING
YEAR 1	<p>MECHANISMS</p> <p>SLIDES AND LEVERS</p> <ul style="list-style-type: none"> • WORKING WITH SLIDERS AND LEVERS • MOVING PICTURES (LINKS TO LITERACY) 	<ul style="list-style-type: none"> • GENERATING, MODELLING AND COMMUNICATING IDEAS. • PLANNING MAKING, SELECTING TOOLS AND USING FINISHING TECHNIQUES. • EXPLORING BOOKS AND PRODUCTS; EVALUATING OWN PRODUCT AGAINST ORIGINAL CRITERIA. • EXPLORING SLIDERS AND LEVERS; UNDERSTANDING TYPES OF MOVEMENT; TECHNICAL VOCABULARY. 	<p>STRUCTURES</p> <p>FREESTANDING STRUCTURES</p> <ul style="list-style-type: none"> • LET'S GET BUILDING AND USING CONSTRUCTION KITS EFFECTIVELY • WHOSE HOME? • DOOR HINGES HELPSHEET <p>OAK ACADEMY UNIT: FREESTANDING STRUCTURES</p>	<ul style="list-style-type: none"> • GENERATING DESIGN IDEAS; DEVELOPING MODELLING AND EXPLAINING USING TALK, MOCK-UPS AND DRAWINGS. • PLANNING MAKING, SELECTING TOOLS AND NEW AND RECYCLED MATERIALS; USING FINISHING TECHNIQUES. • EXPLORING EXISTING FREESTANDING STRUCTURES; EVALUATING THEIR OWN PRODUCTS AGAINST ORIGINAL CRITERIA. • KNOW ABOUT STRENGTHENING STRUCTURES; KNOWLEDGE OF VOCABULARY. 	<p>TEXTILES</p> <p>TEMPLATES AND JOINING TECHNIQUES</p> <p>– JOINING AND FASTENING FABRICS</p> <ul style="list-style-type: none"> • THREE BEARS' PICNIC BLANKET 	<ul style="list-style-type: none"> • GENERATING DESIGN IDEAS; DEVELOPING MODELLING AND EXPLAINING USING TALK, MOCK-UPS AND DRAWINGS. • PLANNING MAKING, SELECTING TOOLS AND NEW AND RECYCLED MATERIALS; USING FINISHING TECHNIQUES. • EXPLORING EXISTING FREESTANDING STRUCTURES; EVALUATING THEIR OWN PRODUCTS AGAINST ORIGINAL CRITERIA. • KNOW ABOUT STRENGTHENING STRUCTURES; KNOWLEDGE OF VOCABULARY.
YEAR 2	<p>MECHANISMS</p> <p>WHEELS AND AXLES</p> <ul style="list-style-type: none"> • TOYS • WHEELS – WORKING WITH WHEELS AND AXLES 	<ul style="list-style-type: none"> • GENERATE IDEAS AND SIMPLE DESIGN CRITERIA. • DEVELOP AND COMMUNICATE IDEAS THROUGH DRAWINGS AND MOCK-UPS. • SELECT A RANGE OF TOOLS AND EQUIPMENT AND MATERIALS TO PERFORM PRACTICAL TASKS. • EXPLORE WHEELS AND AXLES AND EVALUATE THEIR IDEAS AND PRODUCTS AGAINST ORIGINAL CRITERIA. 	<p>MECHANISMS</p> <p>WHEELS AND AXLES</p> <ul style="list-style-type: none"> • LET'S LOOK AT VEHICLES 	<ul style="list-style-type: none"> • GENERATE IDEAS AND SIMPLE DESIGN CRITERIA. • DEVELOP AND COMMUNICATE IDEAS THROUGH DRAWINGS AND MOCK-UPS. • SELECT A RANGE OF TOOLS AND EQUIPMENT AND MATERIALS TO PERFORM PRACTICAL TASKS. • EXPLORE WHEELS AND AXLES AND EVALUATE THEIR IDEAS AND PRODUCTS AGAINST ORIGINAL CRITERIA. 	<p>TEXTILES</p> <p>TEMPLATES AND JOINING TECHNIQUES</p> <ul style="list-style-type: none"> • JOINING AND FASTENING FABRICS • PUPPETS 	<ul style="list-style-type: none"> • DESIGN A FUNCTIONAL, APPEALING PRODUCT FOR A CHOSEN USER AND PURPOSE. • GENERATE, DEVELOP, AND COMMUNICATE IDEAS. • USE A RANGE OF TEXTILES, TOOLS AND EQUIPMENT TO PERFORM PRACTICAL TASKS. • EXPLORE AND EVALUATE EXISTING TEXTILE PRODUCTS AND THEIR OWN IDEAS AND PRODUCTS. • UNDERSTAND HOW 3-D TEXTILE PRODUCTS ARE MADE, USING JOINING, TEMPLATES AND FINISHING TO CREATE TWO IDENTICAL SHAPES.
YEAR 3	<p>MECHANICAL SYSTEMS</p> <p>LEVERS AND LINKAGES</p> <ul style="list-style-type: none"> • MOVING HISTORY BOOK • LEVERS AND LINKAGES POSTER AND SUPPORT PACK 	<ul style="list-style-type: none"> • GENERATE REALISTIC IDEAS AND USE ANNOTATED SKETCHES AND PROTOTYPES TO DEVELOP, MODEL AND COMMUNICATE IDEAS. • SELECT AND USE TOOLS WITH SOME ACCURACY TO CUT, SHAPE AND JOIN PAPER AND CARD. • INVESTIGATE AND ANALYSE THEIR OWN AND OTHERS' PRODUCTS WITH LEVER AND LINKAGE MECHANISMS. • UNDERSTAND AND USE LEVER AND LINKAGES, AND FIXED AND LOOSE PIVOTS. 	<p>TEXTILES</p> <p>TEMPLATES AND JOINING TECHNIQUES</p> <ul style="list-style-type: none"> • JOINING AND FASTENING FABRICS • BENDY BAGS 	<ul style="list-style-type: none"> • DESIGN A FUNCTIONAL, APPEALING PRODUCT FOR A CHOSEN USER AND PURPOSE. • GENERATE, DEVELOP, AND COMMUNICATE IDEAS. • USE A RANGE OF TEXTILES, TOOLS AND EQUIPMENT TO PERFORM PRACTICAL TASKS. • EXPLORE AND EVALUATE EXISTING TEXTILE PRODUCTS AND THEIR OWN IDEAS AND PRODUCTS. • UNDERSTAND HOW 3-D TEXTILE PRODUCTS ARE MADE, USING JOINING, TEMPLATES AND FINISHING TO CREATE TWO IDENTICAL SHAPES. 	<p>ELECTRICAL SYSTEMS</p> <p>SIMPLE CIRCUITS AND SWITCHES (INCLUDING PROGRAMMING AND CONTROL)</p> <ul style="list-style-type: none"> • DEVELOPING HANDMADE SWITCHES • NIGHT LIGHTS (LINKS TO LITERACY) • TORCHES, LAMPS AND LANTERNS 	<ul style="list-style-type: none"> • USE ANNOTATED SKETCHES, CROSS-SECTIONAL AND EXPLODED DIAGRAMS TO DEVELOP AND COMMUNICATE IDEAS. • SELECT AND USE TOOLS WITH SOME ACCURACY TO CUT, SHAPE, JOIN AND FINISH. • USE CONSTRUCTION MATERIALS AND ELECTRICAL COMPONENTS ACCORDING TO THEIR FUNCTIONAL PROPERTIES AND AESTHETIC QUALITIES. • UNDERSTAND AND USE ELECTRICAL SYSTEMS IN THEIR PRODUCTS, SUCH AS SERIES CIRCUITS INCORPORATING SWITCHES, BULBS AND BUZZERS.

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	AUTUMN 2	KEY LEARNING	SPRING 2	KEY LEARNING	SUMMER 2	KEY LEARNING
YEAR 4	<p>STRUCTURES</p> <p>SHELL STRUCTURES (INCLUDING COMPUTER-AIDED DESIGN)</p> <ul style="list-style-type: none"> • BANISH BROKEN BISCUITS 	<ul style="list-style-type: none"> • GENERATE IDEAS AND DESIGNS, DEVELOPING THEM THROUGH ANALYSIS OF SHELL STRUCTURES AND USE CAD TO MODEL AND COMMUNICATE IDEAS. • PLAN THE MAKING AND USE APPROPRIATE TOOLS AND SOFTWARE, EXPLAINING THEIR CHOICES. USE COMPUTER-GENERATED FINISHING TECHNIQUES. • EVALUATE SHELL STRUCTURES AND THEIR OWN PRODUCTS. • DEVELOP KNOWLEDGE OF NETS OF CUBES AND CUBOIDS AND MORE COMPLEX 3D SHAPES AND HOW TO CONSTRUCT STRONG, STIFF SHELL STRUCTURES. 	<p>TEXTILES</p> <p>2D SHAPE TO 3D PRODUCT</p> <ul style="list-style-type: none"> • APRONS 	<ul style="list-style-type: none"> • GENERATE DESIGN CRITERIA FOR AN APPEALING, FUNCTIONAL PRODUCT FOR SPECIFIC USERS. • PRODUCE ANNOTATED SKETCHES, PROTOTYPES, FINAL PRODUCT SKETCHES AND PATTERN PIECES. • SELECT FABRICS AND FASTENINGS ACCORDING TO THEIR FUNCTIONAL CHARACTERISTICS. • INVESTIGATE A RANGE OF 3-D TEXTILE PRODUCTS. • TEST THEIR PRODUCT AGAINST THE ORIGINAL CRITERIA AND WITH THE INTENDED USER. 	<p>MECHANICAL SYSTEMS</p> <p>PNEUMATICS</p> <ul style="list-style-type: none"> • MAKE A MASCOT 	<ul style="list-style-type: none"> • GENERATE THEIR OWN REALISTIC IDEAS AND USE ANNOTATED SKETCHES AND PROTOTYPES TO DEVELOP, MODEL AND COMMUNICATE IDEAS. • SELECT AND USE TOOLS WITH SOME ACCURACY, CUT AND JOIN MATERIALS AND COMPONENTS SUCH AS TUBING, SYRINGES AND BALLOONS. • INVESTIGATE AND FIND INFORMATION ON AND PRODUCTS WITH PNEUMATIC MECHANISMS AND EVALUATE THEIR OWN PRODUCTS AND IDEAS AGAINST CRITERIA AND USER NEEDS. • UNDERSTAND AND USE PNEUMATIC MECHANISMS.
YEAR 5	<p>MECHANICAL SYSTEMS</p> <p>CAMS, GEARS AND PULLEYS</p> <ul style="list-style-type: none"> • MECHANISMS WITH A MESSAGE • GEARS AND PULLEYS 	<ul style="list-style-type: none"> • GENERATE A DESIGN FROM RESEARCH; DEVELOP A SPECIFICATION, MODEL AND COMMUNICATE IDEAS. • PRODUCE LISTS OF TOOLS AND MATERIALS AND PLANS TO MAKE ACCURATELY ASSEMBLED AND WELL FINISHED PRODUCTS WITHIN CONSTRAINTS. • COMPARE FINAL PRODUCT TO THE ORIGINAL SPECIFICATION; TEST PRODUCTS WITH THE INTENDED USER AND CRITICALLY EVALUATE THE PRODUCT, CONSIDERING THE VIEWS OF OTHERS. • INVESTIGATE FAMOUS MANUFACTURING AND ENGINEERING COMPANIES RELEVANT TO THE PROJECT. 	<p>STRUCTURES</p> <p>FRAME STRUCTURES</p> <ul style="list-style-type: none"> • BIRD HIDE CHALLENGE • WORKING WITH PAPER STRAWS 	<ul style="list-style-type: none"> • RESEARCH USER NEEDS AND EXISTING PRODUCTS AND DEVELOP AND MODEL INNOVATIVE IDEAS INTO A DESIGN SPECIFICATION. • FORMULATE A PLAN WITH A STEP-BY-STEP LIST OF TASKS AND RESOURCES. • USE TOOLS TO ACCURATELY MEASURE, MARK OUT, CUT, SHAPE AND JOIN MATERIALS TO MAKE FRAMEWORKS. • USE FINISHING TECHNIQUES SUITABLE FOR THE PRODUCT AND CRITICALLY EVALUATE THEIR PRODUCTS AGAINST A RANGE OF CRITERIA. • RESEARCH KEY EVENTS AND INDIVIDUALS RELEVANT TO FRAME STRUCTURES. 	<p>ELECTRICAL SYSTEMS</p> <p>MORE COMPLEX SWITCHES AND CIRCUITS (INCLUDING PROGRAMMING, MONITORING AND CONTROL)</p> <ul style="list-style-type: none"> • ALARMING VEHICLES • DEVELOPING HANDMADE SWITCHES • HANDMADE SWITCHES HELP SHEET 	<ul style="list-style-type: none"> • DEVELOP A DESIGN SPECIFICATION FOR A FUNCTIONAL PRODUCT THAT RESPONDS AUTOMATICALLY TO CHANGES IN THE ENVIRONMENT. • FORMULATE A STEP-BY-STEP PLAN TO MAKING, LISTING TOOLS, EQUIPMENT, MATERIALS AND COMPONENTS. • USE A COMPUTER CONTROL PROGRAM TO ENABLE AN ELECTRICAL PRODUCT TO WORK AUTOMATICALLY IN RESPONSE TO CHANGES IN THE ENVIRONMENT. • TEST AND EVALUATE THE SYSTEM TO DEMONSTRATE ITS EFFECTIVENESS FOR THE INTENDED USER AND PURPOSE. • KNOW AND USE TECHNICAL VOCABULARY RELEVANT TO THE PROJECT.
YEAR 6	<p>TEXTILES</p> <p>COMBINING DIFFERENT FABRIC SHAPES</p> <ul style="list-style-type: none"> • FANCY A BAG? • DESIGNER BAGS 	<ul style="list-style-type: none"> • GENERATE AND COMMUNICATE INNOVATIVE IDEAS THROUGH RESEARCH. • PRODUCE DETAILED LISTS OF EQUIPMENT AND FABRICS AND FORMULATE STEP-BY-STEP PLANS FOR MAKING. • INVESTIGATE AND ANALYSE TEXTILE PRODUCTS LINKED TO THEIR FINAL PRODUCT AND COMPARE THE FINAL PRODUCT TO THE ORIGINAL DESIGN SPECIFICATION. • KNOW THAT A 3-D TEXTILE PRODUCT CAN BE MADE FROM A COMBINATION OF PATTERN PIECES, FABRIC SHAPES AND DIFFERENT FABRICS AND THAT FABRICS CAN BE STRENGTHENED, STIFFENED AND REINFORCED. 	<p>TEXTILES</p> <p>COMBINING DIFFERENT FABRIC SHAPES (INCLUDING COMPUTER-AIDED DESIGN)</p> <ul style="list-style-type: none"> • DESIGNER BAGS • DESIGNING WITH TEXTILES 	<ul style="list-style-type: none"> • GENERATE INNOVATIVE IDEAS THROUGH RESEARCH AND DEVELOP THESE USING MOCK-UPS AND PROTOTYPES INCLUDING USING COMPUTER-AIDED DESIGN. • DESIGN FUNCTIONAL, APPEALING PRODUCTS FOR THE INTENDED USER THAT ARE FIT FOR PURPOSE BASED ON A SIMPLE DESIGN SPECIFICATION. • SELECT AND USE A RANGE OF TOOLS AND EQUIPMENT, INCLUDING CAD, TO MAKE PRODUCTS THAT ARE ACCURATELY ASSEMBLED AND WELL FINISHED. • WORK WITHIN THE CONSTRAINTS OF TIME, RESOURCES AND COST. 	<p>MECHANICAL SYSTEMS</p> <p>PULLEYS AND GEARS</p> <ul style="list-style-type: none"> • GEARS AND PULLEYS • FAIRGROUNDS • FRAMES FOR MOTORISED PROJECTS 	<ul style="list-style-type: none"> • GENERATE IDEAS THROUGH RESEARCH AND DEVELOP AND COMMUNICATE A SIMPLE DESIGN SPECIFICATION. • SELECT USE A RANGE OF TOOLS AND EQUIPMENT TO MAKE PRODUCTS THAT THAT ARE ACCURATELY ASSEMBLED AND WELL FINISHED WITHIN THE CONSTRAINTS OF TIME, RESOURCES AND COST. • COMPARE THE FINAL PRODUCT TO THE ORIGINAL DESIGN SPECIFICATION AND TEST THE QUALITY OF THE DESIGN, MANUFACTURE AND FUNCTIONALITY WITH THE USER. • INVESTIGATE FAMOUS MANUFACTURING AND ENGINEERING COMPANIES RELEVANT TO THE PROJECT.