

Design and Technology Knowledge Map

Year R

Autumn Term – Houses & Cooking and Nutrition

Houses:

- I can build simple construction models, and create enclosures for farm/house for Three Little Pigs/Gruffalo & other story themes
- I can construct houses using large wooden bricks
- I can discuss my design as I build it
- I can adapt my design while I build, recognising its fitness for purpose

Cooking and Nutrition:

- I can try and taste different foods and know that all food comes from plants and animals.

Vocabulary

- stack, balance, join, sweet, salty

**Spring Term – Dinosaur Models & Pancakes/Biscuits
(Cooking and Nutrition)**

- I can plan, design, draw and select materials to make a dinosaur model
- I can begin to evaluate my model and say if it worked or not and begin to use the word 'because'.
- I can use scissors and adhesive where appropriate.

Pancakes/Biscuits:

- I can begin to weigh and measure ingredients to make pancakes or biscuits

Vocabulary

- plan, design, draw, make, work, because

**Summer Term – Minibeast Homes - Forest School &
Sandwiches (Cooking and Nutrition)**

Minibeast Homes:

- I can talk about my plan, design, select materials and evaluate my Minibeast home.

Sandwiches:

- I can spread fillings to make sandwiches (for picnic or using cress/salad crops grown)
- I can begin to say which bread and filling I think is healthy

Vocabulary

- plan, draw, make, spread, weigh, measure, mix, change, choose, because, healthy

Year 1**Autumn Term – Fruit Kebabs (Cooking and Nutrition)**

- I know that everyone should eat at least 5 portions of fruit and vegetables every day.
- I can name and sort foods into groups on the 'Eatwell plate'.
- I know how to prepare simple dishes safely and hygienically, without using a heat source.
- I know that food has to be farmed, grown elsewhere (eg. home) or caught.
- I know simple techniques of cutting/peeling/chopping safely to make food.
- I know how to make a fruit kebab safely.
- I can use a peeler and a blunt knife safely.

Vocabulary

- fruit, vegetable, farmed, grown, caught, cutting, peeling, chopping, food, kebab, skewer, safety, knife, peeler

Spring Term – Wooden Spoon Puppets**Design**

- I know that in the past poorer children would have toys made out of household items such as wooden spoons and have seen pictures of these (History link).
- I know to use my interests/ likes to think of ideas for my wooden spoon toy.
- I can share my ideas and explain what I'm going to do.
- I can explain who my toy is for.
- I can explain my design and the reasons I have made it like I have.
- I can draw my ideas.
- I can make a template of my ideas in card or paper.

Make

- With help I can measure, mark out, cut and shape in a range of materials.
- I can use scissors safely.
- I can make my wooden spoon toy by sticking materials to the spoon with glue.
- I can make my wooden spoon toy look better by painting and decorating it.

Evaluate

- I can say if my Wooden Spoon Puppet makes a good toy.
- I can say what I like about my Wooden Spoon Puppet and why.
- I can say what I dislike about my Wooden Spoon Puppet and why.
- I can say what is good about my Wooden Spoon Puppet
- I can say what I would change if I made it again.

Vocabulary

- materials, wooden spoon, design, toy, template, glue, stick, measure, mark out, cut

Summer Term – Bridges - Forest School

Design

- I can examine and discuss some famous bridges from around the world and some local bridges.
- I know a bridge is a structure built to join two sides without blocking the way underneath it.
- I know a bridge needs to be strong for people, cars, lorries and trains to cross.
- I can talk about my ideas and explain what my bridge is going to be like.
- I can draw my bridge.

Technical Knowledge

- I know that to make my bridge stronger, I need to use a range of materials and processes.
- To make my bridge more stable I know that it needs to have supports.

Make

- With help, I can build a bridge by measuring, marking out and cutting shapes from a range of materials.
- I can safely use scissors.
- I can join my materials together using glue or masking tape.
- I can make my bridge look better by painting and decorating it.

Evaluate

- I can say if my bridge works well because it can hold over 5kg.
- I can say what I like about my bridge and why.
- I can say what I dislike about my bridge products and why.
- I can say what is good about my bridge.
- I can say what I would change if I built it again.

Vocabulary

- bridge, strong, stiffer, stable, scissors, glue, masking tape, join, materials, wood, metal, card, plastic, supports

Year 2

Autumn Term -- Moving pictures and Finger Puppets

Moving Pictures

- I know how to use a lever mechanism on a picture.
- I know that the lever mechanism will make part of my picture move.

- I know that when I push and pull the lever, the part of my picture will move left and right.

Vocabulary

- lever, push, pull, mechanism, movement,

Finger Puppets

- I know how to measure, cut and shape fabric from a pattern.
- I know how to join fabric to make a simple product (finger puppet).
- I know how to use basic sewing techniques.
- I know the equipment I need to use when sewing and joining fabric.
- I can choose and use finishing techniques on my puppet.

Vocabulary

- fabric, sew, needle, stitch, join, technique, cotton

Spring Term – Pizza (Cooking and Nutrition)

Healthy Eating

- I know the basic important parts of a healthy diet.
- I know how to sort food into the 5 groups on the 'Eatwell' Plate.
- I know how to prepare a simple dish safely using grating and peeling.
- I know how to prepare simple dishes safely and hygienically.

Vocabulary

- healthy, diet, prepare, dish, 'Eatwell plate'

Summer Term – Making Small Structures - Forest School

- I can measure cut materials with some accuracy.
- I can use hand tools safely and accurately e.g. a junior hacksaw
- I can assemble, join and combine materials to make a small structure.
- I can explore how to make my structure stronger, stiffer and more stable.
- I can confidently say if my structure is stable and fit for purpose.
- I can confidently talk about what I like and dislike about my structure.

Vocabulary

- hand tools, hacksaw, fit for purpose, assemble, join, structure

Year 3

Autumn Term - Spanish Paella (Cooking and Nutrition)

Spectacular Spain (Geography topic)

- I know how to chop and cut a selection of vegetables safely, using claw or bridge techniques
- I know where some of the foods I am preparing come from, such as vegetables that grow in the ground both locally and globally
- I know how and why to wash my hands thoroughly before preparing food

Humans and other Animals (Science topic)

- I know which foods make healthy options
- I can use the Eatwell plate to evaluate a daily menu
- I know that foods such as potatoes and pasta are carbohydrates and good for providing energy to the body

Islam (RE Topic)

- I know how to measure, mark, cut and score materials
- I know how to measure, tape or pin, and cut fabrics with some accuracy
- I can join fabric together
- I know how to work safely with a range of tools such as scissors, knives and glue-guns

Christianity: Incarnation (RE topic)

- I know how to measure, cut and thread wool or other flexible materials.

Vocabulary

- tape, pin, score, cut, thread, textiles, evaluate

Spring Term – Water Collection Devices - Forest School

Incredible Egyptians (History topic)

- I know how the pyramids were designed, developed and built
- I know that Imhotep invented and engineered the first Egyptian pyramid (the 'step' pyramid)
- I know that the Egyptians used a water-collection device called the 'Shaduf'
- I know how a cam, lever and pulley work to create movement
- I know that listening to others and evaluating my own work will help me to improve what I have made
- I know why I have chosen the mechanical component (cam, lever or pulley) that I have for my water collection device

Vocabulary

- lever, pulley, cam, mechanical, movement, moving parts

Summer Term –Magnets/ Forest School

Design

- I can gather information about the needs and wants of my target group.
- I can examine the work of designers to develop and plan my own design.

- I know that disassembling and evaluating existing products can help me to improve them or to plan my own design
- I know why I have chosen the aesthetics that I have for my magnet design

Make

- I can use and explain and how to use a range of tools and techniques to make my product
- I know how to work more accurately with tools such as scissors and rulers

Evaluate

- I can disassemble and evaluate familiar products and consider the views of others to improve them.
- I can evaluate my product against the original design criteria
- I know that some things can be recycled or reused and can suggest which parts or products are useful in this respect

Vocabulary

- disassemble, assemble, re-assemble, aesthetics, recycle

Year 4

Autumn Term – Electrical Toy - Forest School

Design

- I know who my intended user is
- I can evaluate existing products and use this to inform my own ideas.
- I know that electrical systems have an input and output.
- I know how simple electrical circuits and components can be used to create functional products.

Make

- I can select tools and techniques.
- I can measure, mark out and cut a range of materials.
- I can begin to use finishing techniques on my products.

Vocabulary

- finishing technique, intended user, input, output, product

Spring Term – Musical Instruments

Design

- I know that disassembling and evaluating existing products can help me to improve them or to plan my own design.
- I can identify if an instrument is tuned, solid or hollow, which parts need to be strong, which parts make a noise and how they make different notes.
- I know how to relate the ways things work to their intended purpose, how materials and components have been used to meet people's needs, and what users say about them.
- I know how the working characteristics of materials relate to the way's materials are used, for example on a stringed instrument the thicker the string is, the lower the pitch will be.
- I know that different types of sounds can be made using different techniques.
- I know different ways to join and combine materials accurately in temporary ways.

- I know how to research and used different online information sources to help design my instrument and explain my choices e.g Tinkercad.
- I know how to draw my design from different points of view and label it accurately, stating which materials will be used and how it will join.
- I know that listening to others and considering my own success criteria will help me to improve what I have designed.

Make

- I know how to strengthen and improve the appearance of my design by using my online research sources.

Evaluate

- I know how to test and self-evaluate my instrument against my design criteria and consider future improvements.
- I know how to test and peer-evaluate effectively, commenting on positive points and making some suggestions for improvements.

Technical Knowledge

- I know why I have chosen the aesthetics that I have for my design.
- I know how to strengthen and reinforce a 3D framework.

Vocabulary

- tools, join and combine, strengthen, improve, self-evaluation, peer-evaluation

Summer Term – Greek Food (Cooking and Nutrition)

- I know where some of the foods I am preparing come from, such as vegetables that grow in the ground both locally and globally
- I know some traditional Greek foods, such as pitta bread, Tzatziki and Greek salads
- I know how and why to wash my hands thoroughly before preparing food
- I know how to peel, chop, grate, slice, mix, knead and bake food safely using a range of techniques, e.g. using the claw or bridge technique when chopping
- I know how to make pitta bread, tzatziki, feta and spinach parcels and Greek salads
- I know that a healthy diet is made up of a variety of different foods and drinks and can create 'The Eat Well Plate'

Vocabulary

- healthy, balanced, knead, bake, carbohydrate, fats, sugar, fruit and vegetables, dairy

Year 5

Autumn Term – Smoothies

Design

- I know how to taste-test a variety of products on the market.
- I can carry out research using a survey of users to find out their needs and preferences
- I know how to plan and design a product for a specific purpose.
- I can draw up a specification for my design using mathematical skills.
- I know how to create a tasty product that is also healthy and nutritious

Make

- I know how to create a smoothie using decisions on costing and seasonal ingredients
- I can use appropriate finishing techniques eg. design and make my own label to appeal to my target user.

Evaluate:

- I know how to evaluate the success of my product using my own opinion and the opinions of others and by carrying out taste test.

Vocabulary

- hygiene, fibre, nutrients, water, preparation, recipe, design, packaging, research, survey, target user, preferences

Spring Term – Aqueducts - Forest School

- I know how to research Roman designs and specific patterns
- I know how to measure and create a plan for my mosaic design on paper and make it symmetrical
- I know how to select suitable materials and colours to create an aesthetically pleasing product.
- I know how to fix the tiles in place using grout.
- I can apply finishing techniques.
- I know how to evaluate my finished product.

Vocabulary

- symmetrical, grout, fixing

Summer Term - Forest School- Trebuchet

Design

- I can examine a variety of different designs from history evaluating them for efficacy
- I can research different ways of applying force to an object
- I can observe a large trebuchet in action in order to think about my own design and how levers, cams and pulleys work

Plan

- I know how to plan and design a product for a specific purpose.
- I can draw up a specification for my design using mathematical skills.

Make

- I can select appropriate materials which are strong and flexible
- I know how to select the appropriate tools
- I know how to measure, cut out and shape a range of materials
- I know how to join some materials and leave others un-joined to create movement within my product

Evaluate

- I know how to evaluate the success of my product using my own opinion and the opinions of others and by carrying out a test

Technical Knowledge

- I know how to strengthen and reinforce a 3D framework
- I understand how mechanical systems such as cams or pulleys or gears create movement

Vocabulary

- cam, pulley, lever

Year 6**Autumn Term – Model of Skara Brae - Forest School and ‘Light-up’ Christmas Card****Model of Skara Brae**Design

- I know how to produce detailed plans for my model using a plan and front elevation.
- I know how to join elements made from different materials.
- I know how to modify my design if needed and evaluate it as I go along.
- I know how to use finishing techniques which are appropriate for my model.

Make

- I can confidently select appropriate tools and techniques, materials and use them safely and accurately.

Evaluate

- I know how to evaluate the product I have made and how to adapt my plan if it needs to be changed

Vocabulary

- stable, front elevation, plan elevation, reinforce

Light-up Christmas Card

- I know how to reinforce my card structure so that it can support the weight of the circuit
- I know how to use a range of tools and materials to achieve different effects
- I know how to create a working circuit using a range of materials to suit my product
- I know how best to measure, mark and cut out elements of my design
- I know how to use a range of finishing techniques to improve the appearance of my product
- I know how to evaluate the product I have made and how to adapt my plan if it needs to be changed
- I can create more complex electrical circuits and combine components to make a functional product

Vocabulary

- LED, copper conductive tape, connect, circuit

Spring Term – no project**Summer Term – Mayan food (Cooking and Nutrition) Forest School and Computer-controlled buggy (IT links)**Mayan Food

- I know about the diet of the ancient Maya and can evaluate how healthy it was/ how close to the ‘Eatwell’ plate their diet was.

- I know that some of their foods are in season in the UK, and others will not be.
- I know the basic principles of food safety and hygiene when cooking.
- I know how to use certain tools safely (sharp knives, grater, heat source etc).
- I know how to devise a Mayan menu, paying attention to a balanced diet.
- I know how using different ingredients and proportions will change the taste/texture of the food.
- I know that each ingredient contains certain nutrients, which when combined together, affect the taste/texture of the food.

Vocabulary

- balanced diet, food safety, taste, texture, nutrients, ingredients, seasonality

Computer-controlled buggy (IT links)

- I know how to program a 'Crumble' controller using a laptop/iPad
- I know how to incorporate the controller and electrical components into my product to make its lights flash/sound an alarm
- I know how to monitor and adapt the programming to improve it
- I know how to strengthen and reinforce by using gussets

Vocabulary

- program, control, monitor, components, gusset