

## **Year 1**

### Term 1 – Food

Pupils will:

- use their senses to help them describe a dip
  - explain what they like and dislike about a dip
  - name the countries where different dips come from
  - find the country on a map where a dip comes from
  - use their sense of sight, smell and taste to describe the dippers
  - taste different dippers and explain which they like and why
  - sort foods in dips and dippers into 5 food groups
  - describe the jobs the different food groups do
  - explain why they should eat more fruit, vegetables and carbohydrates
  - follow the food hygiene rules before and whilst making my dip and dippers
  - Safely use a range of kitchen equipment safely prepare ingredients- to cut, peel, grate and chop.
  - name at least three different making words
  - measure using teaspoons and tablespoons
  - include foods from different groups in a plan
  - talk through their ideas then use illustrations or notes to plan the making work
  - select and use kitchen equipment using their plan to guide them
  - say what went well and what could have been improved
  - explain how they have met their design criteria
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### Term 4 – Moving Pictures

Pupils will:

- look closely at books which have moving parts
- say what parts move
- explain what the moving part does
- explain how it works
- explain what effect it has
- evaluate how well it works
- explain what a slider mechanism is
- use a slider to make a picture move
- measure and cut accurately to make a scene for my picture
- fix a slider to the character that is going to move
- assemble the scene and slider
- decide how long a lever needs to be
- decide where to put their pivot

- make a hole in the picture and lever then use a split pin to assemble it
- check that the lever works
- move the pivot if the picture doesn't move how they want it to
  
- put a card disc on a background with the edge sticking out
- draw a small square on a background and cut it out
- use a split pin to fix the disc and paper together
- draw four images on the disc
- turn the disc to check it moves easily and the pictures look correct
- explain why it is important to have a design criteria.
- use design criteria to help them create an idea for a moving picture aimed at young children
- decide which part of the story to make
- say which part of their picture will move
- sketch a design and label it to show the mechanisms and materials
- follow their design for a moving picture
- show they have tried to include the design criteria
- improve their moving picture as they work on it
- talk about their moving picture and say what they did well
- look at the design criteria when evaluating their moving picture
- start to think about how they could improve their work

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### Term 6 – Fabric

#### Pupils will:

- describe how a fabric looks and feels
- name and spot familiar fabrics
- carefully look at and feel different hair types and say what they are made from
- say if they think the hair looks good or not and explain why
- choose a material
- manipulate the material to make it look like their own hair
- start to use a running stitch correctly
- glue, stitch, staple, sew, apply sticky tape and use safety pins to join fabrics and materials together
- attach different materials such as ribbon, wool, buttons and sequins using the same techniques
- draw a template for their face shape
- carefully cut paper following a line
- use a template to mark a shape onto fabric
- accurately cut a fabric following a line
- write a design criteria to help them design their fabric face
- create an annotated drawing to communicate their ideas

- write a list of tools and materials that they need
- choose from different fabrics and materials, thinking about colour and texture
- think about how well the fabrics will join together
- follow a design, adding improvements if they need to
- use joining tools and equipment such as a stapler, needle, glue and sticky tape
- use scissors to cut accurately

## **Year 2**

Term 1 – Lunch Boxes

Pupils will:

- explain any problems a product has
- explain the positive features of a product
- suggest improvements to a product
- investigate a product through looking, feeling, opening, closing and disassembling it
- evaluate a product through answering questions about it
- rank products from best to worst and explain my choices
- look at the reclaimed materials and think about which will be strong and waterproof
- think about the design criteria when choosing materials
- start to think about how materials can be changed and added to in order to improve a design
- design a lunch box and select materials to meet a design criteria
- decide which tools and equipment would be helpful for making my lunch box
- carefully and correctly use different tools and equipment
- use the design criteria to evaluate how successful my product is
- compare their product to others
- explain how to use tools and equipment to carry out improvements
- carry out the improvements so the product meets the design criteria
- retest the lunch box and evaluate how well the improvements have worked against the design criteria

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Term 3 - Fabric

Pupils will:

- say what they like and dislike about the design of a product
- use existing products to help them start to gather their own ideas
- create some ideas for their design through drawing sketches
- use a computer program to develop their design further
- cut out a paper template
- use chalk to trace around their template onto felt
- cut out the fabric bunting shape

- master the skills of using scissors to cut accurately
  - thread a needle
  - know how to start and finish a stitch
  - create a running stitch
  - describe different types of fabric
  - choose a fabric which will work well with their bunting design
  - name three different joining techniques and why they might choose them
  - join their fabric decoration to their felt flag
  - use a design criteria to help them evaluate
  - say two things that they did well and one thing they would improve
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### Term 5 - Food

#### Pupils will:

- recognise and name at least 5 different fruits and vegetables
- say the names of some root vegetables
- explain that some fruit and vegetables grow above the ground and some grow below the ground
- sort the fruits and vegetables into groups that below the ground and groups that grow above the ground
- taste salads made from root vegetables and explain what they like about them and how they could be improved
- say which salad they liked the most and why
- explain that it is important to eat at least 5 portions of fruit and vegetables a day to help give them energy and keep their body healthy
- explain that fruit and vegetables contain lots of vitamins and minerals
- follow the food hygiene rules when preparing food
- use kitchen equipment safely when preparing food
- assemble and combine ingredients
- say the different types of water that the fish we eat live in
- know at least two health benefits of eating fish
- follow the Food Hygiene Rules
- select and safely use a zester and juicer
- chop using kitchen scissors and a safe knife
- name some fruits that grow in the UK
- explain why some fruits don't grow in the UK and can say where these fruits grow
- follow a simple recipe
- peel, cut and combine ingredients

## **Year 3**

Term 1 – Kites

Pupils will:

- know about Homan Walsh and the story of how he used a kite to help build the Niagara Falls Bridge
- explain why this was an important event in design and technology
- explain and discuss what they already know about kites
- write down their existing ideas
- look at a kite and point to the bridle, line, tow point, keel, sail, spars and tail
- explain the job the different parts do
- explain what would happen without the different parts
- name at least three different kite shapes
- explain the strengths of different shaped kites
- select different materials to make my kite out of
- use construction equipment to create kite shapes
- explain their existing understanding about design criteria
- explain what is meant by design criteria and why they are important
- create their own design criteria for a kite based on knowledge gained about kite parts and shapes
- decide upon the shape they want my kite to be
- communicate their ideas about materials, measurements and decoration
- use a ruler/ tape measure to mark out the measurements of their design
- accurately cut the shape of their design out
- design the structure for their kite

- use more complex tools and equipment such as hacksaws and bench hooks to make the structure for their kite
  - select appropriate methods of joining to add strength to the structure of the kite
  - stiffen the body and frame of the kite
  - test their kite
  - use design criteria to say whether their kite was successful
  - comment on the overall process of the kite making project
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### Term 3 – Food

Pupils will:

- explain that Warburtons were and still are pioneers of the bread industry
  - say key events that led to the success of the Warburtons brand
  - place key events in chronological order
  - name some of Warburtons existing products
  - taste different breads and analyse the texture, smell, appearance and flavour
  - summarise the findings of the market research
  - generate ideas for design criteria based on research
  - develop clear goals that the bread must achieve in order to be successful, innovative and appealing
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- shape dough into rolls and knots
  - create their own shapes for the rolls
  - use their design criteria to inform their designs
  - generate a selection of first designs
  - evaluate ideas against the set design criteria
  - use initial designs and design criteria to inform their final design
  - produce annotated sketches to clearly show the final design
  - explain and communicate their final design
  - select and prepare ingredients hygienically using appropriate kitchen equipment
  - measure ingredients accurately to the nearest gram and millilitre
  - evaluate their product against my design criteria
  - evaluate their bread against design criteria whilst making it; adjusting and improving when needed
  - write a final evaluation of their bread taking into account the opinion of others
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### Term 6 – Juggling Balls

Pupils will:

- explain why we need to analyse products

- investigate and evaluate different features such as colour, shape, child appeal, decoration and function
- interpret and summarise findings
- discuss and develop their ideas and then clearly show them using annotated sketches
- design an appealing product
- aim their design at a particular group
- decide which technique they want to use
- correctly place elastic bands or strings on to their fabric
- dye their fabric
- trial different fillings such as beans, rice, lentils and sand
- select a filling which they think is the most functional
- cut around a template
- explain why a hem is needed and can use a running stitch to create a hem
- explain why different techniques are/are not functional for decorating juggling balls
- copy a design onto fabric using pencil first then fabric paints or pens
- create a 'high quality' decoration
- explain why we use different stitches
- use an overcast stitch to join their juggling ball
- fill their juggling ball to create a finished shape
- explain how well their juggling ball has met the design criteria
- suggest improvements to their juggling ball

## **Year 4**

Term 2 – Mechanical Posters

Pupils will:

- look closely at mechanical systems which use levers and linkages
- say what parts move
- explain how a system works using the words input and output
- explain the difference between a lever and a linkage
- identify levers and linkages
- follow instructions to make a lever and linkage mechanism
- discuss ideas for design criteria by thinking about who the poster is for
- adapt existing products to help generate interesting ideas for their poster
- develop their ideas using annotated sketches to show the parts which will move
- include features of a design criteria when creating sketches
- explain what a prototype is
- use a prototype to test their poster
- discuss and evaluate their prototype against design criteria

- use their experience of making mechanisms to help them select the correct tools and equipment
  - use tools to accurately cut, shape and join paper and card
  - introduce new materials and techniques into their product to create a high-quality finish
  - look at a range of materials and techniques used by other people and select some which they would like to replicate
  - identify a lever, linkage, loose pivot and fixed pivot
  - explain the function of the levers, linkage, loose pivot and fixed pivot
  - identify things they have done well and how they could improve
  - complete a final evaluation of their product against the design criteria
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### Term 3 – Electrical Systems

Pupils will:

- explain which technological changes have taken place
  - say what enabled those changes to happen
  - explain what the effects have been and how they have helped shape the world
  - explain that symbols can be used to represent circuit components
  - create a series and parallel circuit and explain the difference between them
  - find faults in a circuit
  - draw circuits using symbols
  - explain that a switch is used to make or break a complete circuit
  - make different examples of switches and use them in a circuit
  - identify complete and incomplete circuits
  - explain what is meant by design criteria and why they are important
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- create their own design criteria for a light, thinking about how to make it fit for purpose and aimed at particular groups
  - design a product that has a clear purpose and an intended user
  - decide upon the shape they want my light to be, aiming for their design to be innovative
  - communicate ideas about materials, measurements and decoration using an annotated sketch
  - explain that a cross-sectional diagram is useful to communicate ideas about electrical components
  - select suitable materials to make their light out of which are similar to the effect they want to achieve
  - select appropriate sized batteries and components to hold the battery
  - wire up a circuit to the battery and the switch to make the bulb work effectively



- add in materials to make the light reflect efficiently so that it works well and look nice
  - make the lamp look well finished by adding functional and aesthetic decoration
  - answer questions aimed at evaluating their lamp
  - use the design criteria to inform their evaluation
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## Term 5 – Food

Pupils will:

- name common herbs such as: thyme, mint, parsley, tarragon, rosemary and basil
- explain how to plant and care for some herbs
- explain why herbs need to be in warm places to grow well
- explain the Eatwell plate and which foods they should be eating more and less of
- explain some of the benefits of eating fruit and vegetables and carbohydrates
- follow a recipe to create a balanced meal
- explain that strawberries are grown outside and in polytunnels and glass houses
- explain that strawberry plants produce runners that make new plants
- say when the strawberry season is in the United Kingdom
- say how to plant and look after their own strawberry plant
- safely and correctly use a variety of kitchen tools including a knife, whisk and masher
- measure ingredients accurately to the nearest millilitre
- follow a recipe, making adjustments when necessary
- create a smooth, runny, tasty drink and explain why it is good for them
- plant a tomato seed
- explain that tomato seeds need warmth and water to start to grow and can explain that this is best achieved in warm seasons
- explain that tomato plants need air, light, water, nutrients and room to grow
- prepare ingredients safely and hygienically using appropriate cooking utensils
- follow a recipe for tomato bruschetta or tomato sauce.
- assemble or cook ingredients (controlling the temperature of the hob if cooking)

## Year 5

### Term 1 – Mechanical Systems

Pupils will:

- gather ideas and explain how animals move to inform their design
- gather ideas and explain their appearance and habitat to inform their design
- explain what a cam and follower are
- identify cams and followers on mechanisms

- explain how rotary motion is converted into linear motion in a mechanical system
  - explain how using a snail and egg shaped cam changes the movement of the mechanism
  - make a mechanism and change the shape of the cam to see how this changes the movement of the follower
  - choose appropriate sheet materials to make a simple cam mechanism
  - explain why the material is fit for the purpose
  - explain what design criteria are and why they play an important role in product development
  - use the acronym CAFEQUES to help them develop design criteria for a moving mechanical animal
  - use the design criteria to help develop an innovative design
  - use a hacksaw and bench hook to cut wood accurately to 1mm
  - join materials using card triangles or pin nails
  - use sandpaper to ensure a smooth finish
  - share and discuss their design and listen to the views of others to help them improve their design.
  - use the design criteria to inform their evaluation
  - select materials to use to make the cams from
  - measure and cut the dowel wood for use as the axle/shaft for the cams to turn on
  - make a handle to work the mechanical system for their animal
  - make adjustments to the mechanical system to make it run well.
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### Term 3 – Food

#### Pupils will:

- name a variety of ingredients from different places
- identify on a map places where different ingredients flourish
- say how an ingredient might be prepared and used
- revise the different food groups on the Eatwell plate
  
- explain similarities between different types of food eaten around the world and can say why this is important
- place varied foods eaten around the world into the correct food groups
- say the nutritional benefits of rice
- explain where rice belongs on the Eatwell plate
- follow a recipe to measure ingredients accurately
- explain how to scale a recipe up or down
- use a hob as a heat source to cook rice

- explain the importance of correct storage and heating of cooked rice
  - grate and dice food
  - use some more advanced food skills and techniques, such as frying
  - use some basic food skills such as cracking an egg, peeling and shredding
  - use some more advanced cooking techniques such as baking
  - set up a neat and orderly cooking area
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### Term 6 – Felt Phone Cases

Pupils will:

- aim their design criteria at a specific group of people
- think about the aesthetics of the phone case
- write a design criteria that refers to the functionality of their phone case
- create innovative designs
- design with the target market in mind
- listen to other people's ideas
- sketch their designs from different angles
- add detailed annotations to their design ideas
- transfer measurements onto squared paper
- cut out their template
- explain why templates are necessary
- sew a running stitch, backstitch and overcast stitch
- choose which stitch they will use on my final felt phone case
- explain why the stitch they have chosen is the most appropriate to use on my final felt phone case
- explain why it is important to create a step by step plan
- create a plan to show the main stages of making
- use the design criteria to check that they have included each making stage on their step by step plan
- select decorations aimed at their target market thinking about colours, patterns and textures
- consider functionality when selecting fastenings
- refer to their design criteria to support their choices of fastenings and stitches
- explain how effectively their design meets the design criteria
- evaluate any changes that they have made to their product

## **Year 6**

Term 1 - Structures

Pupils will:

- explain the term free standing structure
  - explore existing free standing structures and explain what gives them strength, reinforcement and stability
  - build free standing structures from construction kits
  - strengthen, reinforce and stabilise a tall structure
  - explain different techniques used to join card to other materials
  - apply these methods when making a marble run bridge
  - select appropriate tools and equipment to help them create an accurate and precise finish
  - evaluate the different joining methods thinking about strength, functionality and aesthetics
  - explore how to create bends
  - develop practical skills to help them make bends in a marble run
  - select and use tools and equipment to help create bends
  - test the bend to make sure a marble runs smoothly through it
  - investigate how components fit together to create different marbles runs
  - focus on components that help to increase the run time of the marble
  - create a marble run from existing products that takes the longest possible run time for the marble from start to finish
  - select materials and components that work well functionally to make a marble run
  - select materials and components according to their aesthetic qualities
  - evaluate the materials and components they used
  - use design criteria to evaluate other people's work
  - consider the views of others to improve their own work
  - improve their work to create a high quality finish
  - use design criteria to create a final evaluation of their own design
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### Term 3 - Programming

Pupils will:

- know and understand how a floor robot moves
- program instructions to control a floor robot
- generate ideas for an adventure map
- develop an idea for an adventure
- explore how floor robots move on different materials
- discuss the best use of different materials as obstacles
- create an adventure map
- evaluate their adventure map based on a design criteria
- use a range of materials to make an adventure map

- use appropriate joining methods
  - program a floor robot accurately
  - evaluate the effectiveness of obstacles on an adventure map
  - suggest an improvement to a finished product
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### Term 5 - Food

#### Pupils will:

- explain that fruit and vegetables are in season when they are naturally ripe
- name the seasons when cherries, sprouts, pumpkin, blackberries, peas and parsnips are in season
- use the seasonal fruit and vegetable chart
- say what the words reared, caught and processed mean
- name some foods that are reared, caught and processed and say where some of these foods come from
- explain that reared and caught foods are also seasonal
- enjoy tasting new seasonal foods
- describe the taste, texture and smell of foods
- say which ingredients they preferred and explain why
- explain the Eatwell plate and know the proportions of a balanced meal
- explain some of the benefits of eating protein
- say which foods are good sources of protein
- generate creative ideas about food
- take feedback and improve their designs
- include an annotated diagram in their final design
- communicate their choice of ingredients, methods, cooking times and temperatures
- say at least 4 key rules of storing and handling raw and cooked fish and meat
- explain the system of using different chopping boards
- demonstrate a wide range of preparation techniques
- use different cooking techniques such as grilling, griddling, frying and boiling
- refine their recipe including ingredients, methods and cooking times
- evaluate their final product against the design criteria