



## Design & Technology Policy

This policy was developed as part of a consultation process involving pupils, staff, parents and Governors of the school, based on best practice advice (where available) from Lancashire County Council.

The implementation of this policy will be monitored by the school leadership team

This policy should be read in conjunction with the following documents:

- Key Learning documents for Design and Technology
- National Curriculum
- EYFS Statutory Framework
- Teaching and Learning Policy
- Curriculum Policy
- E-Safety Policy
- Child Protection Policy
- Health and Safety Policy

<b>Policy Created:</b>	February 2016	
<b>First Presented to Governors for approval:</b>	3 <sup>rd</sup> February 2016 (Curriculum Committee)	
<b>Proposed Review Cycle/Date:</b>	3 Year	Next Review: May 2022
Review History		
<b>Approved by (Headteacher)</b>	<b>Approved by (Governor)</b>	
<b>Date:</b>	<b>Date:</b>	<b>Date:</b>
<b>Date:</b> June 2019	<b>Date:</b> May 2022	<b>Date:</b>
<b>Key Changes:</b> • No changes, date only	<b>Key Changes:</b> • No changes, date only • Further amendments to skills progression expected in 2022/23 academic year	<b>Key Changes:</b>
<b>Presented to Governors:</b> Curriculum Committee 5 <sup>th</sup> June 2019	<b>Presented to Governors:</b> Curriculum Committee 21 <sup>st</sup> June 2022	<b>Presented to Governors:</b>

## 1. Ryelands School – Mission Statement

### *Imagine believe achieve*

*In our school community every individual is respected valued and nurtured; we share a belief about every child's ability to exceed their dreams.*

*We teach children to love life themselves and the world around them. Through learning we foster curiosity perseverance and resilience.*

*We believe that our attributes are not fixed; that our abilities and intelligence can grow through engagement effort and by embracing challenge.*

## 2. Aims

The aims of Design and Technology in this school are to provide opportunities for children to experience designing, making and modifying and to use a wide range of materials including card, textiles, construction materials and food. We aim to develop children's design and technology capability using knowledge and skills from a wide range of other curriculum areas. This will be achieved through practical activities in which children investigate and make good quality products, fit for their intended purpose. Children will use the design process whereby ideas may be transformed into objects as they continually evaluate their work. They will also have the opportunity to disassemble, investigate and evaluate products. It is hoped that they will have enjoyable, practical, learning experiences. These aims are consistent with our school philosophy and take account of the LEA Guidance and the key learning skills for design and Technology (Appendix One)

## 3. Subject Statement

Design and technology prepares pupils to participate in tomorrow's rapidly changing technologies. They learn to think and intervene creatively to improve quality of life. The subject calls for pupils to become autonomous and creative problem solvers, as individuals and members of a team. They must look for needs, wants and opportunities and respond to them by developing a range of ideas and making products and systems. They combine practical skills with an understanding of aesthetics, social and environmental issues, function and industrial practices. As they do so, they reflect on and evaluate present and past design technology, its uses and effects. Through Design and Technology, all pupils can become discriminating and informed users of products and become innovators.

## 4. Teaching and Learning including Planning and Organisation

We plan the activities in Design and Technology so that they build upon the prior learning of the children. We give children of all abilities the opportunity to develop their skills, knowledge and understanding and we also build planned progression, so that the children are increasingly challenged as they move through the school. At Ryelands, we use the Key Learning documents for Design and Technology when planning cross curricular teaching and learning (Appendix One).

### **The Foundation Stage**

Design and Technology in the Foundation Stage is an integral part of the continuous provision. We ensure that there is an emphasis on creative work in the nursery and reception class. We relate the creative development of the children to the objectives set out in the Development Matters in the Early Years document, which underpin the curriculum planning for children in the foundation stage.

## 5. Curriculum Overview and Progression including visitors, trips and extra-curricular provision

Subject planning:

Design and Technology is a foundation subject in the National Curriculum. At Ryelands Primary School we use a skills-based scheme of work, which ensures progression whilst enabling creative cross-curricular links. (Appendix One)

Our medium-term plans give details of skills taught each term in relation to cross curricular planning. We plan the activities in Design and Technology so that they build upon the prior learning of the children. While we give children of all abilities opportunity to develop their skills, knowledge and understanding, we also build planned progression into the scheme of work, so that there is an increasing challenge for the children as they move up through the school.

## **6. Assessment, Recording and Reporting**

Assessment is used to inform future planning and to provide information about individuals throughout their time in this school.

Assessment techniques will ensure that teachers assess the on-going design process and not just the finished products or outcomes. These techniques should include:-

- teachers' observation of pupils
- teacher – pupil discussion and teacher questioning
- pupils' drawings, notes, models, comments and written work
- artefacts made by pupils
- pupils' on-going analysis of their achievements
- photographs of children engaged in the design process
- use of ICT as appropriate.

When reviewing the children's progress in Design and Technology, teachers must consider children's:

- knowledge and understanding of materials and components
- understanding of mechanisms and ICT control
- ability to use materials and equipment safely
- ability to develop, plan and communicate design ideas
- interest and motivation in designing and making
- ability to appreciate and produce items of quality that meet its intended purpose.

Records of pupils' achievements are kept to:

- plan pupils' future learning
- report progress to parents
- maintain a written record of pupils' learning
- provide a curricular record for each pupil

## **7. Inclusion including meeting the needs of SEN pupils and children entitled to PPG funding**

It is the responsibility of all teachers to ensure that all pupils, irrespective of gender, ability, including gifted pupils, ethnicity and social circumstance, have access to the curriculum and make the greatest progress possible.

Within Design and Technology, equal opportunities are an issue, which needs addressing by all teachers. This may necessitate careful consideration of groupings including at times single sex groupings when appropriate. Consideration of the technology of different cultures and times should be included.

### **Special Educational Needs**

All pupils will have access to a broad, balanced curriculum, which includes Design and Technology, and have the opportunity to make the greatest progress possible. In particular Design and Technology offers the opportunity for children to achieve in a practical subject, as they are encouraged to communicate in different ways other than writing.

## **8. Resources**

We have a wide range of resources to support the teaching of design and technology across the school. All our classrooms have a range of basic resources. A wide range of mark-making implements and more specialised equipment is stored in the central resource room.

## **9. Professional development and training**

The subject leader attends local conferences and subject update courses when available and then reports back to school in staff training. The teachers are able to attend courses to update their subject knowledge and learn new and exciting ways to teach the topics. (See appendix 2)

## **10. Health and Safety**

- Teachers will always teach the safe use of tools and equipment and insist upon good practice.
- Children will be taught to take steps to control risks.
- Glue guns will be used by Key stage 2 children under direct supervision, but only when there is no other appropriate joining technique.
- Children are taught how to follow proper food safety and hygiene rules.

## **11. Roles and Responsibilities**

The teacher responsible for co-ordinating Design and Technology is Mrs Edwards and her role is described in her job description. This may include the following:

- plan work with teachers
- review and contribute to teacher planning
- prepare policy
- prepare a subject development plan
- provide consultancy, advice, skills
- in-class teaching support
- specifying and ordering resources in consultation with staff
- monitoring and maintaining condition and availability of resources
- monitoring and supporting teaching and learning in Design and Technology.

## **12. Monitoring and Evaluation**

This policy for Design and Technology will be reviewed annually.

Evaluation should take into account:

- pupils' achievements
- coverage of programmes of study
- analysis of teacher planning
- staff development
- classroom observation
- external inspection/advice

# Appendix One

## Key Learning in Design and Technology: Years 1 and 2



Design	Make	Evaluate	
<ul style="list-style-type: none"> <li>Use pictures and words to convey what they want to design/make.</li> <li>Propose more than one idea for their product.</li> <li>Use kits/reclaimed materials to develop more than one idea.</li> <li>Model ideas with kits, reclaimed materials.</li> <li>Select appropriate technique explaining First... Next... Last...</li> <li>Explore ideas by rearranging materials.</li> <li>Select pictures to help develop ideas.</li> <li>Use drawings to record ideas as they are developed.</li> <li>Add notes to drawings to help explanations.</li> <li>Describe their models and drawings of ideas and intentions.</li> </ul>	<ul style="list-style-type: none"> <li>Discuss their work as it progresses.</li> <li>Select materials from a limited range that will meet the design criteria.</li> <li>Select and name the tools needed to work the materials.</li> <li>Explain what they are making.</li> <li>Explain which materials they are using and why.</li> <li>Name the tools they are using.</li> <li>Describe what they need to do next.</li> </ul>	<ul style="list-style-type: none"> <li>Explore existing products and investigate how they have been made.</li> <li>Decide how existing products do/ do not achieve their purpose.</li> <li>Talk about their design as they develop and identify good and bad points.</li> <li>Note changes made during the making process as annotation to plans/drawings.</li> <li>Say what they like and do not like about items they have made and attempt to say why.</li> <li>Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user.</li> </ul>	
Food	Textiles	Structures	Mechanisms
<ul style="list-style-type: none"> <li>Develop a food vocabulary using taste, smell, texture and feel.</li> <li>Group familiar food products e.g. fruit and vegetables.</li> <li>Explain where food comes from.</li> <li>Cut, peel, grate, chop a range of ingredients</li> <li>Work safely and hygienically.</li> <li>Understand the need for a variety of foods in a diet.</li> <li>Measure and weigh food items, non-statutory measures e.g. spoons, cups.</li> </ul>	<ul style="list-style-type: none"> <li>Cut out shapes which have been created by drawing round a template onto the fabric.</li> <li>Join fabrics by using e.g. running stitch, glue, staples, over sewing, tape.</li> <li>Decorate fabrics with attached items e.g. buttons, beads, sequins, braids, ribbons.</li> <li>Colour fabrics using a range of techniques e.g. fabric paints, printing, painting.</li> </ul>	<ul style="list-style-type: none"> <li>Explore how to make structures stronger.</li> <li>Investigate different techniques for stiffening a variety of materials.</li> <li>Test different methods of enabling structures to remain stable.</li> <li>Join appropriately for different materials and situations e.g. glue, tape.</li> <li>Mark out materials to be cut using a template.</li> <li>Use a glue gun with close supervision.</li> </ul>	<ul style="list-style-type: none"> <li>Join appropriately for different materials and situations e.g. glue, tape.</li> <li>Try out different axle fixings and their strengths and weaknesses.</li> <li>Make vehicles with construction kits which contain free running wheels.</li> <li>Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels.</li> <li>Roll paper to create tubes.</li> <li>Cut dowel using hacksaw and bench hook.</li> <li>Attach wheels to a chassis using an axle.</li> <li>Mark out materials to be cut using a template.</li> <li>Fold, tear and cut paper and card.</li> <li>Cut along lines, straight and curved.</li> <li>Use a hole punch.</li> <li>Insert paper fasteners for card.</li> <li>Experiment with levers and sliders to find different ways of making things move in a 2D plane.</li> </ul>

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## Key Learning in Design and Technology: Years 3 and 4



Design	Make	Evaluate	
<ul style="list-style-type: none"> <li>Develop more than one design or adaptation of an initial design.</li> <li>Plan a sequence of actions to make a product.</li> <li>Record the plan by drawing using annotated sketches.</li> <li>Begin to use cross-sectional and exploded diagrams.</li> <li>Use prototypes to develop and share ideas.</li> <li>Think ahead about the order of their work and decide upon tools and materials.</li> <li>Propose realistic suggestions as to how they can achieve their design ideas.</li> <li>Consider aesthetic qualities of materials chosen.</li> <li>Use CAD where appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>Prepare pattern pieces as templates for their design.</li> <li>Cut slots.</li> <li>Cut internal shapes.</li> <li>Select from a range of tools for cutting shaping joining and finishing.</li> <li>Use tools with accuracy.</li> <li>Select from techniques for different parts of the process.</li> <li>Select from materials according to their functional properties.</li> <li>Plan the stages of the making process.</li> <li>Use appropriate finishing techniques.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate similar products to the one to be made to give starting points for a design.</li> <li>Draw/sketch products to help analyse and understand how products are made.</li> <li>Research needs of user.</li> <li>Identify the strengths and weaknesses of their design ideas in relation to purpose/user.</li> <li>Decide which design idea to develop.</li> <li>Consider and explain how the finished product could be improved.</li> <li>Discuss how well the finished product meets the design criteria of the user.</li> <li>Investigate key events and individuals in Design and Technology.</li> </ul>	
Food	Textiles	Structures	Mechanical and Electrical Systems and ICT
<ul style="list-style-type: none"> <li>Develop sensory vocabulary/knowledge using, smell, taste, texture and feel.</li> <li>Analyse the taste, texture, smell and appearance of a range of foods (predominantly savoury).</li> <li>Follow instructions/recipes.</li> <li>Make healthy eating choices – use the Eatwell plate.</li> <li>Join and combine a range of ingredients.</li> <li>Explore seasonality of vegetables and fruit.</li> <li>Find out which fruit and vegetables are grown in countries/continents studied in Geography.</li> <li>Develop understanding of how meat/fish are reared/caught.</li> </ul>	<ul style="list-style-type: none"> <li>Develop vocabulary for tools materials and their properties.</li> <li>Understand seam allowance.</li> <li>Join fabrics using running stitch, over sewing, blanket stitch.</li> <li>Prototype a product using J cloths.</li> <li>Use prototype to make pattern.</li> <li>Explore strengthening and stiffening of fabrics.</li> <li>Explore fastenings (inventors?) and recreate some.</li> <li>Sew on buttons and make loops.</li> <li>Use appropriate decoration techniques.</li> </ul>	<ul style="list-style-type: none"> <li>Develop vocabulary related to the project.</li> <li>Create shell or frame structures.</li> <li>Strengthen frames with diagonal struts.</li> <li>Make structures more stable by giving them a wide base.</li> <li>Measure and mark square section, strip and dowel accurately to 1cm.</li> </ul>	<ul style="list-style-type: none"> <li>Develop vocabulary related to the project.</li> <li>Use mechanical systems such as gears, pulleys, levers and linkages.</li> <li>Incorporate a circuit into a model.</li> <li>Use electrical systems such as switches bulbs and buzzers.</li> <li>Use ICT to control products.</li> <li>Use lolly sticks/card to make levers and linkages.</li> <li>Use linkages to make movement larger or more varied.</li> </ul>

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## Key Learning in Design and Technology: Years 5 and 6



Design	Make	Evaluate	
<ul style="list-style-type: none"> <li>List tools needed before starting the activity.</li> <li>Plan the sequence of work e.g. using a storyboard.</li> <li>Record ideas using annotated diagrams.</li> <li>Use models, kits and drawings to help formulate design ideas.</li> <li>Combine modelling and drawing to refine ideas.</li> <li>Devise step by step plans which can be read / followed by someone else.</li> <li>Use exploded diagrams and cross-sectional diagrams to communicate ideas.</li> <li>Sketch and model alternative ideas.</li> <li>Decide which design idea to develop.</li> </ul>	<ul style="list-style-type: none"> <li>Make prototypes.</li> <li>Develop one idea in depth.</li> <li>Use researched information to inform decisions.</li> <li>Produce detailed lists of ingredients / components / materials and tools.</li> <li>Use a computer to model ideas.</li> <li>Select from and use a wide range of tools.</li> <li>Cut accurately and safely to a marked line.</li> <li>Select from and use a wide range of materials.</li> <li>Use appropriate finishing techniques for the project.</li> <li>Refine their product – review and rework/improve.</li> </ul>	<ul style="list-style-type: none"> <li>Research and evaluate existing products (including book and web based research).</li> <li>Consider user and purpose.</li> <li>Identify the strengths and weaknesses of their design ideas.</li> <li>Give a report using correct technical vocabulary.</li> <li>Consider and explain how the finished product could be improved related to design criteria.</li> <li>Discuss how well the finished product meets the design criteria of the user. Test on the user!</li> <li>Understand how key people have influenced design.</li> </ul>	
Food	Textiles	Structures	Mechanical and Electrical Systems and ICT
<ul style="list-style-type: none"> <li>Prepare food products taking into account the properties of ingredients and sensory characteristics.</li> <li>Weigh and measure using scales.</li> <li>Select and prepare foods for a particular purpose.</li> <li>Work safely and hygienically.</li> <li>Show awareness of a healthy diet (using the Eatwell plate).</li> <li>Use a range of cooking techniques.</li> <li>Know where and how ingredients are grown and processed.</li> <li>Consider influence of chefs e.g. Jamie Oliver and school meals, Hugh Fearnley-Whittingstall, and sustainable fishing etc.</li> </ul>	<ul style="list-style-type: none"> <li>Use the correct vocabulary appropriate to the project.</li> <li>Create 3D products using pattern pieces and seam allowance.</li> <li>Understand pattern layout.</li> <li>Decorate textiles appropriately (often before joining components).</li> <li>Pin and tack fabric pieces together.</li> <li>Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (closer supervision).</li> <li>Combine fabrics to create more useful properties.</li> <li>Make quality products.</li> </ul>	<ul style="list-style-type: none"> <li>Use the correct terminology for tools materials and processes.</li> <li>Use Bradawl to mark hole positions.</li> <li>Use hand drill to drill tight and loose fit holes.</li> <li>Cut strip wood, dowel, square section wood accurately to 1mm.</li> <li>Join materials using appropriate methods.</li> <li>Build frameworks to support mechanisms.</li> <li>Stiffen and reinforce complex structures.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a technical vocabulary appropriate to the project.</li> <li>Use mechanical systems such as cams, pulleys and gears.</li> <li>Use electrical systems such as motors.</li> <li>Program, monitor and control using ICT.</li> </ul>

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## Appendix 2

### What is genuine D&T?

Activities which have ALL three elements:

### **Design/ Make/ Evaluate**

Always consider:

### **Product/ Purpose/ User**

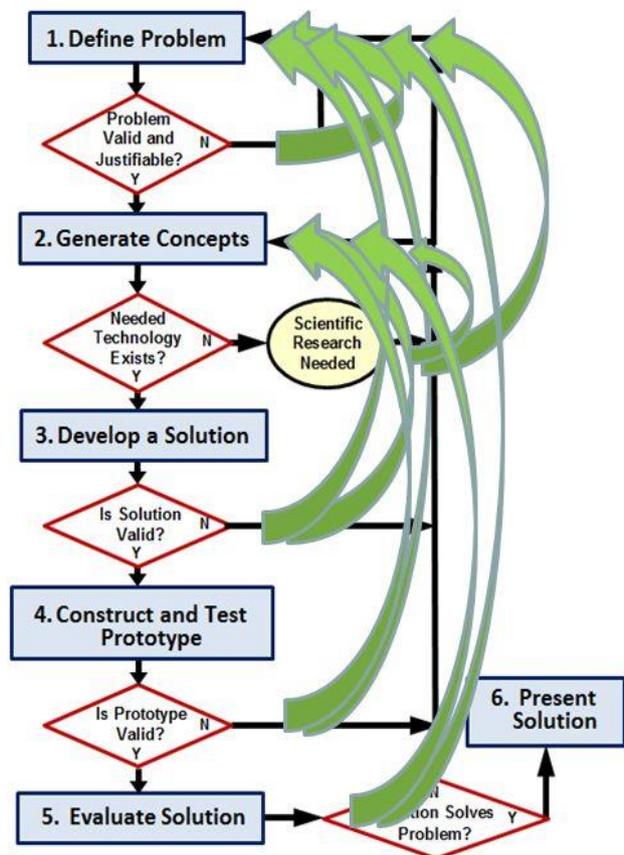
Designing and making a **product**, for **somebody** (this can also apply to 'people substitutes' such as an animal and toy) and for a **particular purpose**. The design element should be to solve a problem. Ideally we should aim to solve real and relevant problems.

The process is not linear but **iterative**, where each element can be revisited several times in order to create the product the best fits the design brief:

## Design Process

### • Iterative

- a process that repeats a series of steps over and over until the desired outcome is obtained



This process is not linear, they children should be encouraged to 'play' with their design until it works. There are six D&T principles which make the iterative process work.

- Have the needs of the **user(s)** been identified and met (or has it been designed with no-one in mind)?
- Does it have a clear **purpose**?
- Have the **design decisions** been made?
- Would it **work/function** (or is it purely aesthetic/ornamental)?
- Is the product **innovative** (or doesn't it offer anything new/original/better)?
- Is it an **authentic** product?

Design

Give a design brief, which will allow the children to look at the bigger picture: what will it be used for, who will use it? During this stage children there could be time to evaluate existing products, to enable the children to understand how they work and what they might do.

Example: design an electrical system to indicate which shows when answers are correct/incorrect

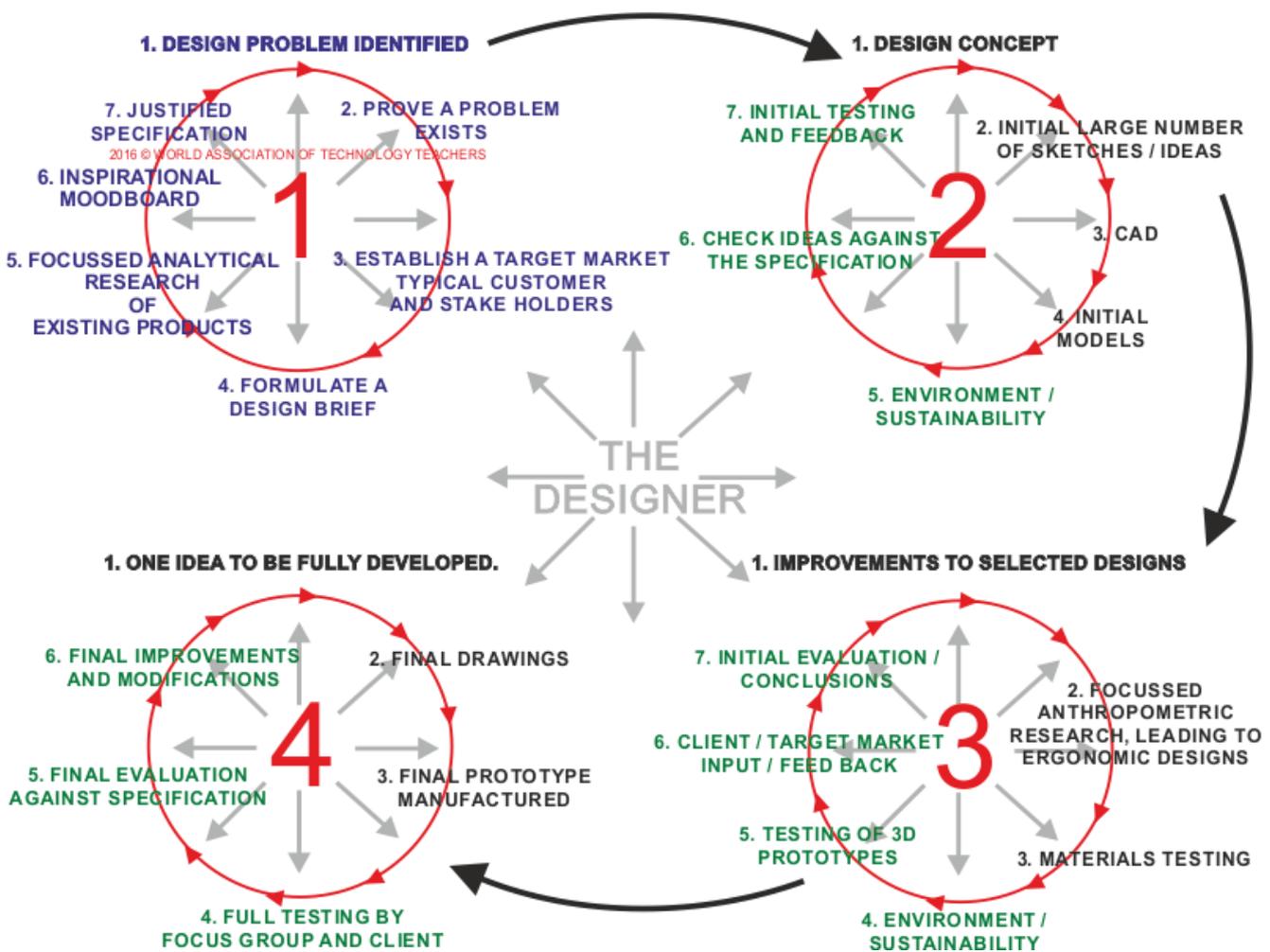
- Where will it be located? -on a shelf?
- Who will use it? – need to discuss with them as to what they want.
- Needs to be suitable/safe to use

Using the iterative approach

- Evaluate existing products- understand how they work and what they might do
- Teach key skills that children will need e.g. tech 3 different ways of making a switch – let the children decide

Consider could you make a ‘draft design’ / prototype which enables to design to be ‘sold’ to the user. This could be written or talked through with the ‘purchaser’.

Role of the designer:



Design and Technology association states:

## What is Primary Design and Technology?

Design and Technology education involves two important elements - learning about the designed and made world and how things work, and learning to design and make functional products for particular purposes and users.

In Design and Technology, children acquire and apply knowledge and understanding of materials and components, mechanisms and control systems, structures, existing products, quality and health and safety.

The skills learned in Design and Technology also help with learning across the curriculum. Their knowledge about the properties of materials helps in science and the practice of measuring accurately helps in maths. These skills help in IT through the children's use of computer control and, naturally, in art and design.

Design and Technology education helps develop children's skills and knowledge in design, materials, structures, mechanisms and electrical control. They are encouraged to be creative and innovative, and are actively encouraged to think about important issues such as sustainability and enterprise.

There are three core activities children engage with in Design and Technology:

- Activities which involve investigating and evaluating existing products
- Focused tasks in which children develop particular aspects of knowledge and skills
- Designing and making activities in which children design and make 'something' for 'somebody' for 'some purpose'

These three activities are combined in sequence to create a Design and Technology project.

[www.data.org.uk](http://www.data.org.uk)